Iraq

Reconstruction

A Thesis

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DEDICATION

This paper is dedicated to the 2,374 US Soldiers, Marines, Airmen, and Navy warriors who have given their life in Iraq and the 17,648 service members who have been injured serving in Iraq. The ultimate sacrifice these heroes have made answering their country's call to duty is something no amount of words or ceremony can accurately capture. To these warriors who have made the ultimate sacrifice, those who have been injured and all who have served, thank you for your courage, service and I pray that God will bless you and your families.

ACKNOWLEDGMENTS

I would like to acknowledge my wife and my children who sacrificed and persevered through three of my deployments since September 11, 2001. Their courage, independence and self-reliance allowed me to deploy. I believe their job and sacrifice far exceeded mine. I would like to thank my military coworkers who assisted me in compiling data for this report and provided invaluable insight into their deployment experience and their personal perspective on the war and reconstruction efforts. Finally, I would like to thank Dr. Uhlik for supporting me during my deployments and during the writing of this thesis. His insight and direction allowed me to focus my investigation efforts and attempt to explain an extremely complex military and reconstruction effort.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

AFCEE	Air Force Center for Environmental Excellence
AOR	Area of Responsibility
CENTCOM	Central Command
CFLCC	Coalition Forces Land Component Commander
CJTF	Combined Joint Task Force
CM	Construction Manager
CO	Contracting Officer
COCOM	Combatant Commander
CPA	Coalition Provision Authority
CPATT	Civilian Police Assistance Training Team
CMATT	Civilian Military Assistance Training Team
DFI	Development Funds for Iraq
FAR	Federal Acquisition Regulation
HA	Humanitarian Assistance
IRRF	Iraq Relief and Reconstruction Funds
IDIQ	Indefinite Delivery Indefinite Quantity
MNSTCI	Multi National Security Transition Command Iraq
NGO	Non Governmental Organization
ORHA	Office of Reconstruction and Humanitarian Assistance

OMB	Office of Management and Budget
PCO	Project Contracting Office
SOW	Scope of Work

SUMMARY

The invasion planning, execution and ongoing reconstruction operations in Iraq are extremely complex. Using research, personal experience and experience of deployed members, this paper documents events which led to the current situation in Iraq, discusses lesson learned and offers alternative approaches which may decrease time and budget requirements for future reconstruction operations.

I have served in the US Armed Forces since 1982. My service includes four tours of duty in the Middle East and I have spent all of my adult life dealing directly or indirectly with Middle East politics and terrorisms. As an Air Force Engineering Officer, I participated directly in the planning, execution, recovery and rebuilding operations associated with Operation Iraqi Freedom. I worked as a member of General Frank's Central Command (CENTCOM) staff, Lt Gen McKiernan's Coalition Force Land Component Command (CFLCC) and Lt General Petreaus's Multi National Security Transition Command (MNSTC-I). As a member of these staffs, I was involved with the engineering, maneuver operations planning and execution. I worked closely with other government agencies, Coalition partners and all branches of the US military in support of operations in Iraq.

The speed and complexity of the invasion and removal of the Saddam's government was unprecedented in military history. The reconstruction effort underway in Iraq is larger, more dangerous and complex than the reconstruction of Europe after WWII. (The US government

took almost four years after WWII to authorize the European Recovery Act (Marshall Plan) and it was nine years before Germany was allowed to reestablish a military) (Petreaus, 2005). The scope and complexity of the Iraqi reconstruction effort surpasses that of the Marshall Plan and will be analyzed by military and civilian members for many years to determine successes and failures of the program.

While I actively participated in the planning, execution and recovery phases of the Iraqi operation my coworkers and I did not fully understand the events we participated in especially the reconstruction process or phase four as defined by CENTCOM planner. The phase four or reconstruction phase has become the longest lasting and most costly phase of the Iraq operation. This phase has exceeded three years, cost 1700+ US servicemen lives and over 14,000 casualties. No one knows when this phase will be complete, how much it will cost in terms of lives and dollars or what the final outcome will be.

This thesis seeks to understand the events that led to the current situation in Iraq by researching the planning and execution of phase four operations by the Coalition military, Coalition and non-Coalition governments, the US State Department, Non Government Agencies and the United Nations. The research is based on unclassified data provided by law to Congress, books, notes and articles published by various agencies and individuals involved in the recovery operations and through my personnel experience and observation over the past four years. This thesis will document the planning process and execution of phase four operations. It will explore alternative approaches to the planning and execution of recovery operations in Iraq based on lessons learned. The goal of this research is to better understand the events that lead to current

conditions in Iraq and explore recovery methods, which if used may have resulted in more successful operations, less loss of life and a quicker end to direct US involvement in Iraq. Due to the complexity of the Iraqi operations, I recognize this thesis is only a small glimpse into the events associated with these operations; however, through initial research I hope to stimulate additional interest in exploring the history and ongoing operations associated with the planning, execution and recovery operations in Iraq. My goal is this thesis and other research will educate civilian, military and engineering planners and allow them to understand the long-term implication of their plans and actions. I also hope to stimulate thought about alternative means to meet our countries objective through deliberate and thoughtful planning and appropriate investment of time, money and our countries human resources.

Chapter 1

INTRODUCTION

The country of Iraq was formed in 1920 by a mandate from the League of Nations to the United Kingdom. Since its formation, Iraq has been ruled first by the UK, second by an Iraqi king installed by the UK and then by a series of military leaders who assumed powered through military coups. The last coups in 1968 lead to the Baath party rule and in 1979 the installation of Saddam Hussein as "President" of Iraq. Saddam's brutal leadership lasted until his ouster in 2003 by coalition forces. Saddam's rule was marked by a deadly 8-year war with Iran where over 1 million Iraqi and Iranian citizens were killed, an invasion of Kuwait, two wars with Coalition forces and a 12-year UN embargo. During Saddam's 24-year rule, he and the Baath party striped Iraq resources to create the world's fourth largest military, and enrich themselves. After the invasion of Iraq by Coalition forces in 2003, the Coalition slowly discovered the extent of Saddam's neglect of the Iraqi civil infrastructure. The failure by Coalition forces to recognize and plan for the extent of decay and destruction of Iraq's vital infrastructure before, during and after the war has damaged the US's reputation and has delayed efforts to reestablish Iraq as an independent and self sustaining country. This thesis looks at the history of reconstruction planning prior to the war, reconstruction efforts over the last three years and the direction of future reconstruction efforts. The thesis explores the history of Iraq and pre war planning, post war decisions, which impacted the reconstruction process in Iraq. This paper looks at the failure of leaders to properly identify and plan for pre and post war conditions in Iraq and the impact of planning failures on the reconstruction operations in Iraq. This paper will outline the impact and critical requirement to complete reconstruction in Iraq and explore currents reconstruction

methods, which are being utilized to more efficiently complete reconstruction efforts. The purpose of this thesis is to conduct initial research into pre and post invasion planning, analyze impact of the reconstruction planning and the decision making process and explore alternative approaches to reconstruction which may meet our countries goals with less capital and human resources. The research objectives of this thesis are to provide an initial data source for other researchers, stimulate thought and additional research into reconstruction planning and execution, explore alternative approaches to planning and execution of reconstruction projects and to provide a basis to understand our mistakes and avoid repeating them in future operations. The original contribution of this thesis is a comprehensive analysis of the entire Iraq operation and its impact on reconstruction in Iraq. The thesis looks at war planning and execution, pre-war reconstruction planning, political decision processes, reconstruction funding, contracting methods, critical decisions, successes and failures of the reconstruction phase. The research methods included data collection in 2005 and 2006, interviews with military and civilian planners who were responsible for reconstruction planning and my personal observations of events that occurred with the reconstruction effort. My hope is that through research and analysis of pre and post war events we can educate civilian, military and engineering planners so they will understand the long term implication of their plans and they will require detailed planning and precise execution of all phases of a future operation.

Chapter 2

BRIEF OVERVIEW OF IRAQ'S HISTORY AND GEOGRAPHY

I. Brief Overview of Iraq's History:

The region, which is called Iraq today, was once know as Mesopotamia and was the home to one of the world's earliest civilizations. This region between the Tigris and Euphrates Rivers was recognized as the birthplace of civilization and flourished for thousands of years. In 1920, the United Kingdom was awarded a mandate, which established the country of Iraq and in 1921 the British installed the first king of Iraq. In 1932 Iraq declared itself an independent country and since then has seen a succession of leaders who acquired and held power through military force.

II. Overview of Iraq's Geography:

While the climate and topography has changed considerable since early times, the country of Iraq is still blessed with a tremendous amount of natural and geographical resources. Iraq has the second largest known reserve of oil and one of the largest reserves of natural gas in the world. For a Middle-Eastern country, Iraq is blessed with a tremendous amount of water. It is fed by the Tigris and Euphrates rivers, which supply several large lakes and wetlands throughout the country. (Figure 1 shows the Tigris River flowing thru Baghdad) The Northeastern section of the country has mountains, which are subject to nine feet of snow a year, while the western and southern regions are barren desert, which see less than 10 inches of rainfall a year (Figure 2 shows a snow feed lake in Northeast Iraq).

Figure 1

Tigris River flowing thru Baghdad

Figure 2

Lake: Northeast Iraq (Snow Fed)

Iraq's natural water resources combined with its' fertile soil is more than capable of meeting the countries food requirements. (Figures 3 thru 8 shows Iraq's agriculture and national irrigation systems) However, Iraq's history of political instability, war and rule by brutal dictators has left the country broke and desolate. Saddam Hussein and the Baath party drained a significant amount of the country's wealth and squandered its natural resources. The Iraq invasion by Coalition members resulted in the Coalition assuming responsibility for rebuilding Iraq's infrastructure. Through reconstruction the Coalition hopes to establish Iraq once again as a major economic, political and cultural center in the Middle East.

Figure 3

Agriculture: North Central Iraq (Date Trees)

Figure 4

Agriculture: North Central Iraq

Figure 5

Irrigation Canals: Northern Iraq

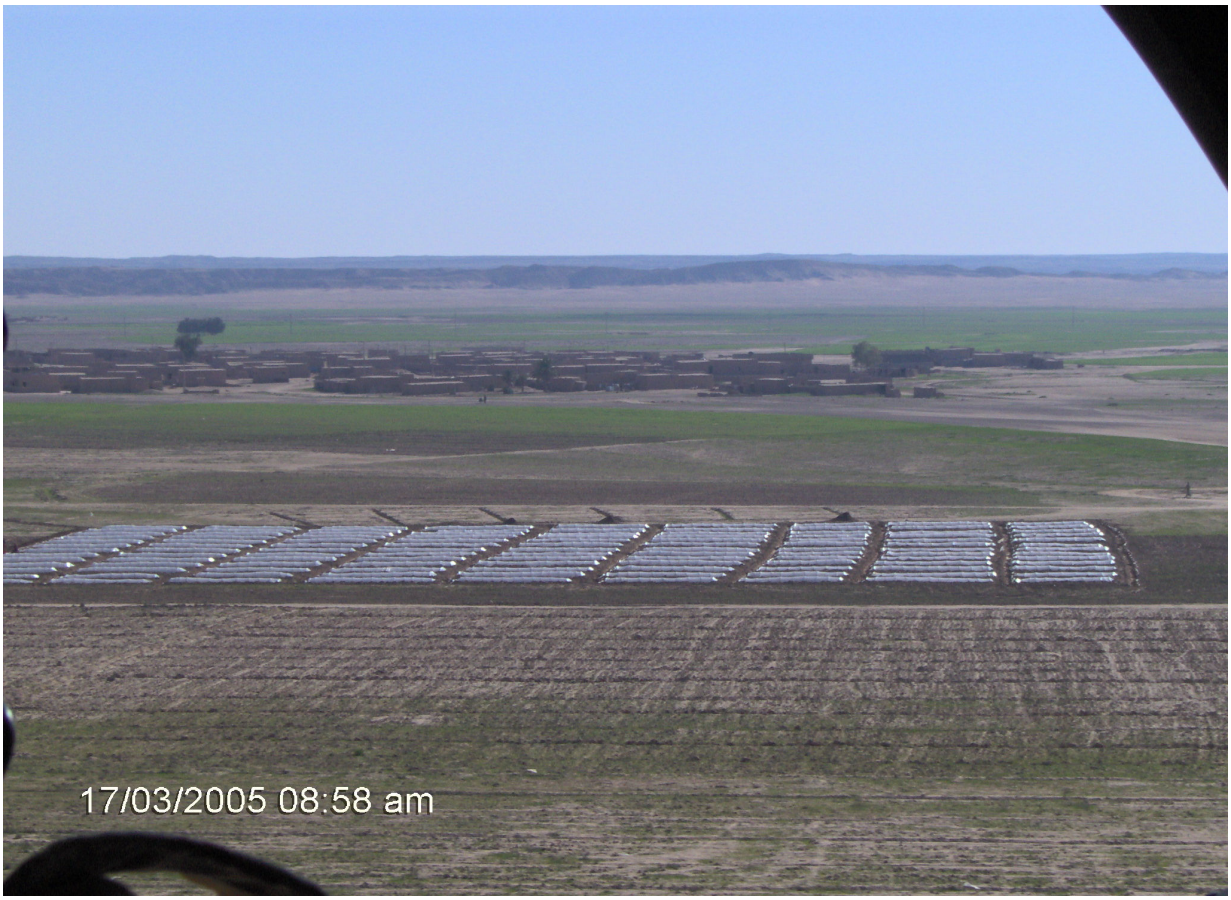


Figure 6

Agriculture: Northwest Iraq

Figure 7

Agriculture: Northeast Iraq

Figure 8

Irrigation and Agriculture

Chapter 3

OPERATION IRAQI FREEDOM PLANNING

I. JOINT OPERATIONS PLANNING

I.A. Joint Staffs

In 1986 Congress passed the Goldwater- Nichols Department of Defense Reorganization Act which established seven regional joint commands (Franks, 2004). Each regional command is lead by a four star general traditionally called the CINC (Commander in Chief) for their Area of Responsibility (AOR). This term was recently changed to COCOM (Combatant Commander) to avoid the Commander in Chief terminology. These commands are staffed with active duty, reserve and National Guard members from all the services. The staffs are tasked with planning and executing all military operations within their region or Area of Responsibility. During peacetime the staffs coordinate with military and political leaders to establish relationships and concepts for future operations. During peacetime the COCOMs do not have any forces; however, during periods of war, each service provides troops and staff to the COCOM to execute his mission within his AOR. During war, the COCOM becomes the commander of all forces within their AOR, and the COCOM is directly supported by component command from each service. EX: CENTCOM's component commands are ARCENT (Army Central Command), NAVCENT (Navy Central Command), CENTAF (Air Force Central Command), MARCENT (Marine Central Command) and SOCCENT (Special Operations Command).

The COCOM joint staffs are generally composed of the following sections:

J1: Responsible for all personnel issues

J2: Responsible for intelligence planning and operations

J3: Responsible for all operations execution

J4: Responsible for all logistics planning, operations and execution

J5: Responsible for developing, updating and maintaining all required plans

J6: Responsible for communications

J7: Responsible for engineering planning and execution

I. B. Engineering

Engineering on a joint staff may fall under the Logistics Director (J4) or they may be a standalone directorate. At the component level, engineering is almost always a standalone directorate and is designated as the J7, C7 or A7. Engineers work closely with the J3, J4 and J5 directorates prior to and during combat operations; however, after active combat operations are complete, major reconstruction and repair operations may be conducted under the joint staff or as in Iraq under a separate engineering command along with a joint command engineering force.

II. UNITED STATES CENTRAL COMMAND

II.A. Operation Iraqi Freedom Planning

Planning for Operation Iraqi Freedom began in late 2001 (Franks, 2004). CENTCOM's staff was tasked with developing a plan that would secure regime change and weapons of mass destruction removal. This plan evolved multiple times over the proceeding 15 months; however, the plan originated with and maintained four distinct phases. The first phase was the preparation phase. In this phase, troop movement would be planned, overseas basing would be negotiated and secured and

an “Air Bridge” would be established to move personnel and equipment (Franks, 2004). Phase two was “shaping of the battle space” by pre-positioning troops and equipment in theater and starting initial combat operations primarily air operations. Phase three was “Decisive Operations” which included full-scale military operations to ensure the “regime forces are defeated or capitulated and regime leaders are dead, apprehended or marginalized”. Phase four operation would be “Post Hostility Operations” and while the timeline for this was unknown, earlier planners assumed this phase would extend for several years (Franks, 2004).

II. B. Phase Four

As originally envisioned phase four operations would end with the “establishment of a representative form of government in a country capable of defending its territorial borders and maintaining internal security, without any weapons of mass destruction”. CENTCOM planners understood that phase four operations would be complex and would rely on noncombatant, nontraditional military units such as Civil Affairs. Additionally, they recognized this phase would require heavy involvement by agencies outside of the Department of Defense, Experienced political and military personnel from the US and other coalition partners. The planning staff realized Non Governmental Organizations support for Humanitarian Operations would be critical to ensuring success of this phase (Franks, 2004).

Initial planning envisioned that troop levels would continue to rise during phase four operations. General Franks thought that troop levels up to 250,000 might be required to ensure a successful phase four operation (Franks, 2004). The Army Chief of Staff, General Shinseki, said he thought numbers approaching 500,000 troops might be required for phase four operations. (General Shinseki was harshly criticized for this statement and may have been pressured to retire early because of his

views on phase four operations and other issues within the Department of Defense). These commanders recognized that establishing security and order would require a significant force and was critical to ensuring a successful operation. Failure to listen to these and other senior military leaders on required troop strengths and complexity of required actions for a successful phase four operations is unfortunate. The Coalition's inability to stabilize Iraq and complete reconstruction efforts after three years may be directly linked to failure to plan and execute a successful phase four operations. Phase four planners understood that a new Iraqi Army would have to be reestablished from units within the existing Iraqi Army. This Iraqi Army would have to provide security within the country, ensure religious extremist and ethnic violence was not allowed to be established and to provide security throughout Iraq for Coalition military and civilian reconstruction teams.

II. C. Economy

Iraq's economy was almost completely a state-run economy with oil providing 95% of the government's income. Due to mismanagement of the economy by Iraq's incompetent leaders, the Gross Domestic Product per capita had dropped from a high of $2500 in 1979 to less than a $1000 in 2002 prior to the invasion (2207, Jan 04). Military planners recognized a massive jobs program would have to be initiated quickly after liberating Iraq. Finding meaningful work for the Iraqi people would allow them to have an adequate income, raise their standard of living and allow them to see hope for the future was a critical component of phase four operations. Planners anticipated that postwar Iraqi's hope for a better future and belief in the coalition's ability to support them would allow for improved security conditions within the country and enable additional international investment in Iraq creating more jobs and prosperity.

III. OFFICE OF RECONSTRUCTION AND HUMANITARIAN ASSISTANCE

III.A. ORHA Concept

As part of the phase four planning, Secretary of Defense Donald Rumsfeld established the Office of Reconstruction and Humanitarian Assistance (ORHA). This office worked under General Franks at CENTCOM and reported directly to Secretary Rumsfeld. On Jan 1, 2003, Secretary Rumsfeld appointed retired Army Lt. General Jay Garner as the head of ORHA (Bremer 2006). General Garner played a key role in providing humanitarian assistance to the Iraqi Kurds in Northern Iraq immediately after the first Gulf war. Garner was viewed as a critical component to ensure the success of phase four operations. ORHA was staffed from a variety of government agencies. Members from the State Department, Department of Defense, and other government agencies were loaned to ORHA; however, ORHA did not have a budget and had a very limited and inexperienced staffed. General Garner lobbied US government agencies hard for support prior to the war and received a lot of promises from various agencies; however, prior to the war his organization was not well supported because agency heads did not know if the war would take place or if ORHA's services would be even be required. Without a defined mission, most government administrators were reluctant to support ORHA with personnel or the required funds to successfully execute a reconstruction mission (Franks, 2004).

III.B. ORHA Implementation

General Garner and the ORHA staff spent many hours prior to the invasion working with CENTCOM and other military planning staff to map out a reconstruction plan (Franks, 2004). The principles of the reconstruction plan were to:

1. "Secure massive funding for the immediate needs of the Iraqi people"

2. "Hire tens of thousands of the former Iraqi soldiers to ensure they had money to take care of their families"

3."Identify political leaders who could be trusted by the Iraqi, and capable of assisting and ultimately replacing an occupying military force."

4. "Implement a de-Baathification policy that wasn't so cumbersome that it essentially disenfranchised Iraq's educated middle class."

According to General Franks, the key to a successful phase four operation was "achieving security and implementing civic action" (Franks, 2004).

III. C. Operations

In early 2003, General Garner moved the ORHA staff to Kuwait to pre-stage for the evasion. However, due to the difficulties he experienced in Washington attempting to secure funding and personnel, his staff in Kuwait was grossly understaffed and under funded. Immediately prior to the invasion he had less than 200 staff members and no where near the financial resources he required (Franks, 2004).

In April 2003 after major combat operations were over, CENTCOM's senior staff recognized the difficult position ORHA was in. The staff understood the anticipated humanitarian crisis likely would not occur; however, the collapse of Iraq's military and police force combined with the decayed infrastructure found throughout Iraq may lead to conditions of poor security and impede civil action.

IV. COALITION PROVISIONAL AUTHORITY

IV.A. CPA Establishment

On 9 May, 2003 President Bush appointed L. Paul Jerry Bremer III, as the Presidential Envoy to Iraq. As the Presidents Envoy, Ambassador Bremer was given "full authority over all US Government personnel, activities and funds" (Bremer, 2006). Immediately after this Secretary Rumsfeld appointed Ambassador Bremer as the head of the Coalition Provisional Authority and "empowered him with all executive, legislative and judicial functions in Iraq" (Bremer, 2006). As the head of the CPA and Ambassador to Iraq, Bremer worked with the Secretary of Defense directly under the President of the United States. (Ambassador Bremer was not given authority over the Coalition military members in Iraq. The military in Iraq remained under CENTCOM's control and worked with the Ambassador and CPA.) This action replaced General Garner as the head of the reconstruction effort and established a new organization to run Iraq and the reconstruction three weeks after the end of combat operations.

IV.B. CPA Implementation

The announcement of the CPA and Ambassador Bremer was presented politically as an adjustment necessary to increase visibility of Iraq's issues, raise reconstruction funds and international support. The official line was ORHA was only a temporary organization and they had accomplished the task they were created for (Bremer, 2006). The effects of the change three weeks into the operation had a significant impact. The press indicated that ORHA was being replaced due to failure on their part and General Garner was subject to a significant amount speculation on why he was being replaced. Ambassador Bremer's opinion

was the position required someone with more diplomatic experience verses military experience. Regardless of why the decision was made, the timing of replacing ORHA and General Garner with a new staff and command structure within weeks of their arrival left many of the staff confused and set the reconstruction effort in Iraq back. General Garner and part of his staff stayed in Iraq for the transition then returned home. The remaining ORHA's staff stayed in Iraq and transitioned into the CPA organization. ORHA still exists as a small entirety under the CPA today.

IV. C. Personal Observation of ORHA

I was not aware ORHA existed until February 2003 when their single engineer contacted me for assistance on an engineering issue. The limited staff had been based out of the Kuwait Hilton in Kuwait City since January; however, they had very limited interaction with the maneuver forces before and during the war. Their hotel was less than 20 miles from the Land Component Commanders HQ; however, there was very little interaction between the agency responsible for executing the war and the agency responsible for feeding clothing and rebuilding Iraq after the war. This self-imposed separation should have been an early indication of the reconstruction difficulties that would follow.

ORHA's failure to communicate with the agency responsible for providing security and civic action assisting Iraq after the war further compounded efforts to rebuild Iraq. Additionally, the limited engineering staff assigned to ORHA and lack of proper funding greatly limited ORHA's ability to access engineering requirements and execute repairs (Franks, 2004).

V. UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT

V.A. USAID Funding

In 2002, the United States Agency for International Development (USAID) began planning for the anticipated humanitarian crises in Iraq after the invasion. USAID issued grants of $60 million for logistics support and $400 million in cash and food to the United Nations World Food Program (2207, Jan 2003). The USAID and the UN World Food Program (WFP) staffs anticipated having to provide basic food supplies to many of Iraq's 25 million people and they believed post war Iraq would be the largest humanitarian relief project in WFP history (USAID, 2004).

V. B. USAID Staffing

USAID established a 60 person Damage Assistance response teams composed of members from the USAID Asia/Near east division to coordinate immediate reconstruction priorities, actions and work with USAID personnel who would be handling long-term reconstruction action in Iraq. When the Humanitarian crises failed to emerge in Iraq, USAID staff continued to operate in Iraq identifying and executing reconstruction projects. They continue to operate today in Iraq as an organization independent of the CPA and the military.

Chapter 4

PHASE THREE MILITARY ENGINEERING PLANNING

I. Phase Three Planning

A significant amount of engineering planning went into preparing the battlefield and support of maneuver forces for the Iraqi invasion. Prior to the war, Iraq possessed a 400,000 man military and had air and missile assets, which were capable of delivering conventional, chemical and biological weapons throughout the region. Additionally, the Iraqi forces had a tremendous advantage in that they would be fighting in their country, land they knew and controlled. From a maneuver forces perspective, the ability of the Iraqi Army to control the fight by controlling the terrain and routes of travel presented tremendous challenges to coalition maneuver forces and engineers. Through denial of roads, bridges, airfields and strategic placement of minefields, the Iraqi Army had the ability to greatly limit Coalition maneuver forces routes of travel, inflict additional casualties and cause significant delays in reaching Baghdad and other centers of power. In addition, the Iraqi Army had the ability to destroy strategic dams and open irrigation networks throughout the country flooding maneuver routes and causing a significant humanitarian crisis. To cope with these possibilities, detailed invasion planning and asset positioning was conducted by the Coalition engineering staff. Most of the planning centered on ensuring desired maneuver routes remained opened given a variety of Iraqi denial techniques. Bridging, mine clearing, airfield repair and maneuver force protection were the main focus of military engineering planners prior to the war.

II. Phase Three Movement

The movement of maneuver forces personnel and equipment presented significant challenges to logistic and engineering staff planners. Before military and civilian members could be moved to the theater, staff engineers had to identify locations for base camps, get host nation approval, construct camps and construct training and equipment storage areas. Logistic planners had to arrange air, sea and land transportation to move units half way across the world. Additionally, they had to feed, equip and support 290,000 Coalition personnel for months prior to the invasion. To counter the numerous Iraqi denial techniques, a significant number of engineering assets and personnel were mobilized and moved forward to Kuwait. Some of these assets were available from active duty forces; however, many of these assets were in the Guard and Reserve forces and had to be mobilized. To ensure the engineering units were available in time, engineering and logistics planners were forced to identify required engineering assets six months to a year prior to the invasion. These units underwent a complex mobilization process which includes additional training, certification and movement of equipment and personnel. The movement of these engineering personnel and equipment involved mobilization. Timing of the engineering unit's movement into theater was critical also as the units and their equipment had to arrive in theater in time to train and preposition. The engineer's mobilization and deployment process went on for many months and played a significant role in the success of the maneuver forces in seizure and control of critical infrastructure in Iraq.

Chapter 5

PHASE FOUR MILITARY ENGINEERING PLANNING

I. Phase Four Planning

In contrast to the extensive planning that went into supporting maneuver forces, little planning was conducted to determine infrastructure repair that would be required after the war. Iraq was assumed to be a modern Middle Eastern country and compared to Afghanistan 18th century infrastructure; Iraq's infrastructure appeared to be in very good condition. Iraq possessed a significant civil infrastructure that included an extensive road network, power production, power distribution, water supply, water distribution, sanitation and airports. Engineering planners assumed this infrastructure would be in good working order after the war and did not plan for nor were they tasked with a massive engineering reconstruction effort.

Before and during combat operations, a significant amount of planning and discussion went into target selections in Iraq. The Coalition recognized destroying Iraq's civil infrastructure had little military value and would be a large liability, which we would have to address after the invasion. Other than targeting the communication network, Coalition forces attacked very little civil infrastructure in Iraq and only when it was required to directly support maneuver forces.

Little pre-invasion phase four military engineering planning was accomplished. Military planners looked at the significant amount of existing civil infrastructure, its perceived condition, and the limited civil infrastructure damage required to execute the invasion and assumed they

would not be responsible for a large scale rebuilding effort. Consequently, little was done on the military engineering side to address and prepare for a large-scale reconstruction effort after the war.

II. Oil Planning

The exception to lack of pre-invasion reconstruction planning was the planning associated with repair of the oil and gas wells. Based on Iraq's actions at the end of the first Gulf War, Coalition forces fully anticipated Saddam Hussein would order his forces to torch the oil fields in southern Iraq and possibly in Northern Iraq. The Coalition recognized the revenue from these oil wells were the key to stabilizing Iraq and establishing a viable and independent country. (Iraq oil revenue under the UN food for oil program was $50M/day) (USAID, 2004). In addition to the requirement to maintain the oil revenue, the Coalition wanted to avoid the environmental impact Saddam created after the first Gulf War by simultaneously burning many of the oil wells in Kuwait as his forces withdrew. To combat the anticipated destruction of Iraq's oil wells, the Coalition formed an engineering group to analyze methods to quickly extinguish the oil well fires, limit the environmental impact of the well destruction and restore the wellheads to operations as soon as possible. Boots and Coots firefighters were pre-staged in Kuwait and they extinguished the nine oil well fires within days of Coalition forces seizing the Rumilyah oil fields in southern Iraq. The majority of the oil wells were not torched and while the oil engineering team was used initially, they did not have to deal with anywhere near the destruction that was anticipated. The Iraqi had positioned explosives on the wells and pipelines; however, Marine and Special Operations Forces defused the vast majority of these (Franks, 2004). The speed of the Marine and SOF forces movement into the southern oil fields likely surprised the Iraq military and they may not have had time to respond. Saddam may have intended to or

actually given the order to torch the oil wells; however, the Coalition's effort to block communications within the Iraqi chain of command through convincing Iraqi leaders not to follow Saddam's orders to torch the wells may have avoided a significant environmental and economic catastrophe.

Chapter 6

IRAQ INVASION

I. Invasion

On 19 March 2003, Special Operations forces began the initial offensive operation in Iraq. Hours later on 20 March 2003 (G-Day), Ground operation began with 170,000 Coalition maneuver forces beginning movement into Iraq. Less than 24 hours after ground forces began initial movement, major air operations started on 21 Mar 2003 (A-Day). Between 20 March and the President's announcement of the end of offensive operations on 1 May 2003 Coalition force traversed almost 300 miles of enemy territory and executed the fastest and most complicated movement in military history (Franks, 2004). Two and a half weeks after crossing the Kuwait border, V Corps and the 1 MEF units entered Baghdad.

II. Infrastructure Condition

The Coalition's first indication of the desperate condition of Iraq's infrastructure came during the early days of the war. Immediately after the maneuver forces pushed through, we (Coalition Engineers) traveled throughout the Southern Oil Fields surveying the oil infrastructure and analyzing required repairs to reestablish oil production. While there was little environmental impact from the small number of oil well fires, the fires had been quickly extinguished, we found significant amounts of oil pooled on the desert surface along the pipelines and at the wells. We determined this pooling was a result of leaking pipes, decayed infrastructure and appeared to have occurred over many years. We were not surprised the environmental impact of oil spills from poorly maintained infrastructure appeared to be of

little concern to the Iraqi government; however, we were amazed at the lack of basic maintenance and repair on the oil systems. These systems were the life of the Iraqi economy and produced 95% of Iraq income. As westerners, we expected the system to be in prime condition, aggressively managed and designed with built-in redundancy. What we found was a system that was almost completely broken by western standards.

We later discovered that the failure to maintain the oil infrastructure was typical of the entire country's infrastructure maintenance. Over time we discovered that the Iraqi maintenance standards were even lower for the rest of their civil infrastructure. What appeared to be viable infrastructure systems prior to the war were in fact in various states of collapse. Water, sewer, electrical, roads and other infrastructure had been neglected for so long many did not work and what worked only did so based on Iraqi ingenuity. Our failure to recognize and plan for this before the war contributed significantly to the ongoing instability in Iraq. Over time, we discovered the poor design, lack of construction standards and poor quality of installed equipment further compounded the issue with Iraq's infrastructure.

III. Infrastructure Assessment

Prior to the war, Iraq appeared to be a modern Middle Eastern country. What neither our intelligence organization nor we understood was the country under Saddam's rule had done little to maintain its' infrastructure. Many of my coworkers and I had worked as engineers in the Middle East before and we were familiar with the Arab culture. We recognized that in the Middle East, technically challenging infrastructure was almost entirely operated and maintained by western companies. We assumed Iraq would be no different. Typically in Middle Eastern countries, western companies install modern, expensive equipment and keep

a well trained and highly paid maintenance staff on hand to ensure its operation. This had not occurred under Saddam rule. Much of the equipment and infrastructure was poor quality when installed and the Iraqi's appeared to have no concept of maintenance required to keep equipment operational.

What we found was that while Iraq had a large amount infrastructure, the lack of basic maintenance and skilled labor render significant portions of their infrastructure useless. (Figure 9 shows the collapse of Iraq's sewer infrastructure) Over time we came to understand Saddam Hussein used the country's vast resources as a means of building up his army, engaging in war, enriching himself, his family and the Baath Party.

Figure 9

Collapse of the Sewer Infrastructure in Baghdad

IV. Looting

Compounding the prewar issue with Iraq's infrastructure, we were faced with an unbelievable amount of looting. We watched while the looting went on; however, we did not have troops in country to stop it nor did we understand the significance of the problem. What we saw were individuals stealing furniture, appliances, commercial goods, etc from a repressive government and we understood these as acts against an Iraqi government that had brutally repressed its people for thirty years. What we did not see and understand was they were destroying the country's vital infrastructure. The government owned almost all civil and industrial infrastructures in Iraq. The looting that occurred to Iraq's infrastructure went well beyond stealing furniture and appliances. The poverty of the Iraqi people before the war and resulting economic shut down after the war left many citizens with few options for survival. This poverty resulted in its citizens taking anything of value from the government-controlled infrastructure. In commercial facilities, they removed wiring, plumbing, fixtures, tiles, blocks, bricks and almost anything that could be removed from unoccupied facilities. In industrial facilities, they stole pipelines, generators, power lines, and other critical infrastructure items along with any stock piled material. This looting resulted in the stripping and gutting of almost all government facilities and the country's supporting infrastructure.

To compound the looting, squatters moved into the abandoned government facilities. Over the next two years these squatters trashed the facilities and compounds. They continued to strip the facilities and basically destroy whatever remaining infrastructure remained.

Between looting and the squatters, many of the Iraqi Government's facilities were destroyed and rendered completely uninhabitable.

Chapter 7

COALITION PROVISIONAL AUTHORITY

I. CPA Establishment

In early May 2004, the President created the Coalition Provisional Authority and appointed Ambassador Bremer as Administrator of the CPA and as the President's special envoy. The duties of the CPA administrator and the military commanders were defined as:

"The administrator of the Coalition Provisional Authority (CPA) reports to the President through the Secretary of Defense. He oversees, directs and coordinates all U.S. Government (USG) programs and activities in Iraq, except those under the command of the Commander, U.S. Central Command (CENTCOM)" (Bremer, 2006).

The duties tasked to the CPA were defined as: "The CPA exercises power of government temporarily in order to provide the effective administration of Iraq, to restore conditions of security, and stability, to create conditions in which the Iraqi people can freely determine their own political future, (including by advancing efforts to restore and establish national and local institutions for representative government) and facilitating economic recovery, sustainable reconstruction and development" (Bremer, 2006).

The authority of the CPA was defined as: "The CPA is vested by the President with all executive, legislative and judicial authority necessary to achieve its objectives, exercised consistent with relevant U.N. Security Council resolutions, including resolution 1483, and laws and usage of war. The CPA administrator has primary responsibility for exercising this authority" (2207, Jun 2003).

II. CPA Administrator

As director of CPA, Ambassador Bremer was given full authority over all U.S. Government personnel in Iraq excluding those under the CENTCOM Commander. He oversaw all personnel from the Department of State, Justice, Treasury and other executive branch staffs operating in Iraq. Ambassador Bremer controlled all non-CENTCOM personnel entering and exiting Iraq, their funding and agency staffing in Iraq. As of late May 2003, Ambassador Bremer controlled a staff 695 personnel in Iraq. This staff includes USAID Disaster Assistance Response Teams (DART) and the remaining ORHA staff. (Bremer, 2006) (Table 1 shows the Coalition's Chain of Command. Table 2 shows the CPA's organizational structure.)

III. Coalition Forces

The Commander of Coalition Forces was tasked to "directly support the CPA by deterring hostilities, maintain Iraq's territorial integrity and security, searching for securing and destroying weapons of mass destruction and assisting in carrying out Coalition policy" (2207, Jun 2003). After the end of offences operations, CENTCOM established Combined Joint Task Force – 7 as the command structure in Iraq. CFTF-7's commander reported directly to the CENTCOM Commander under the Sectary of Defense. In May, 2003 CJTF-7's Commander had 147,500 US troops and 13,000 coalition troops under his command (Franks, 2004).

Table 1 Coalition's Chain of Command
2207 Report to Congress
June 2003

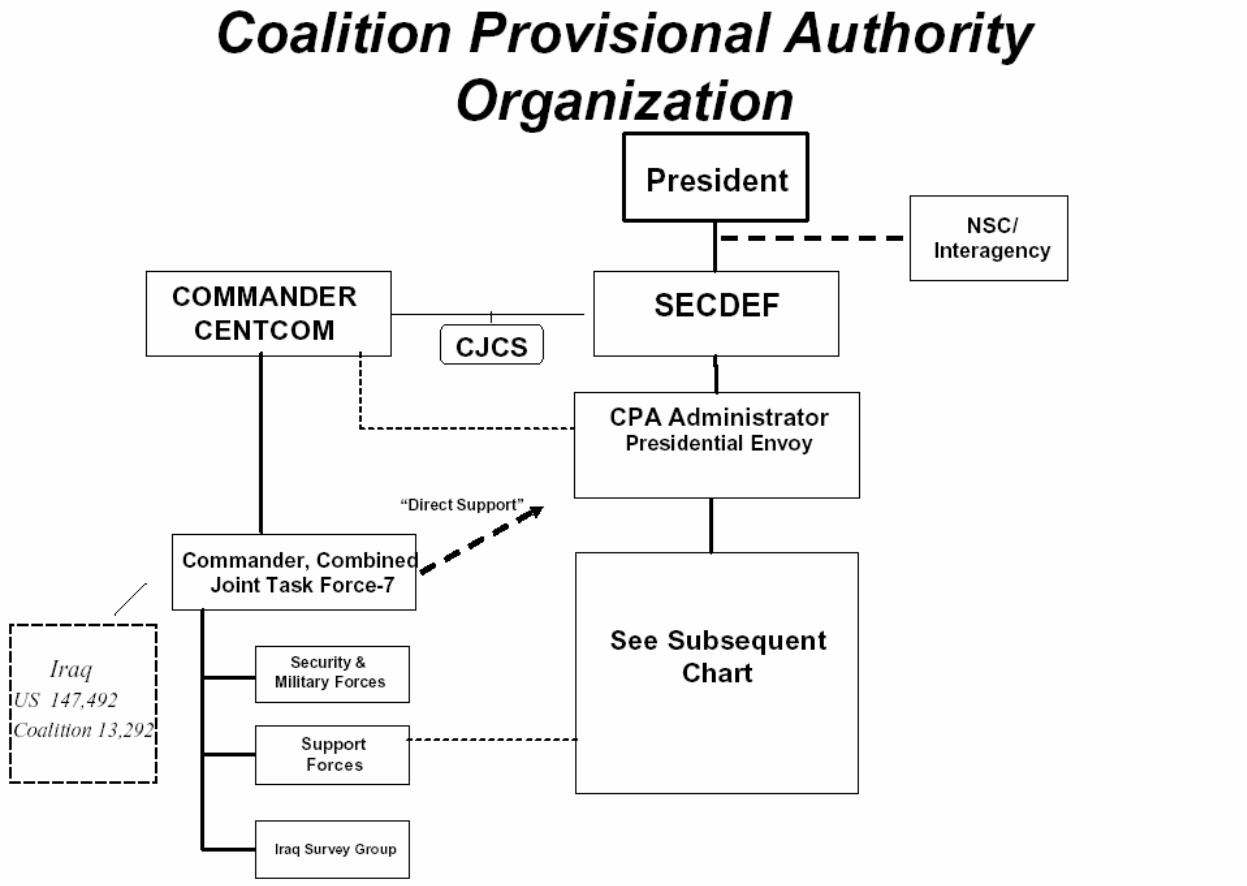
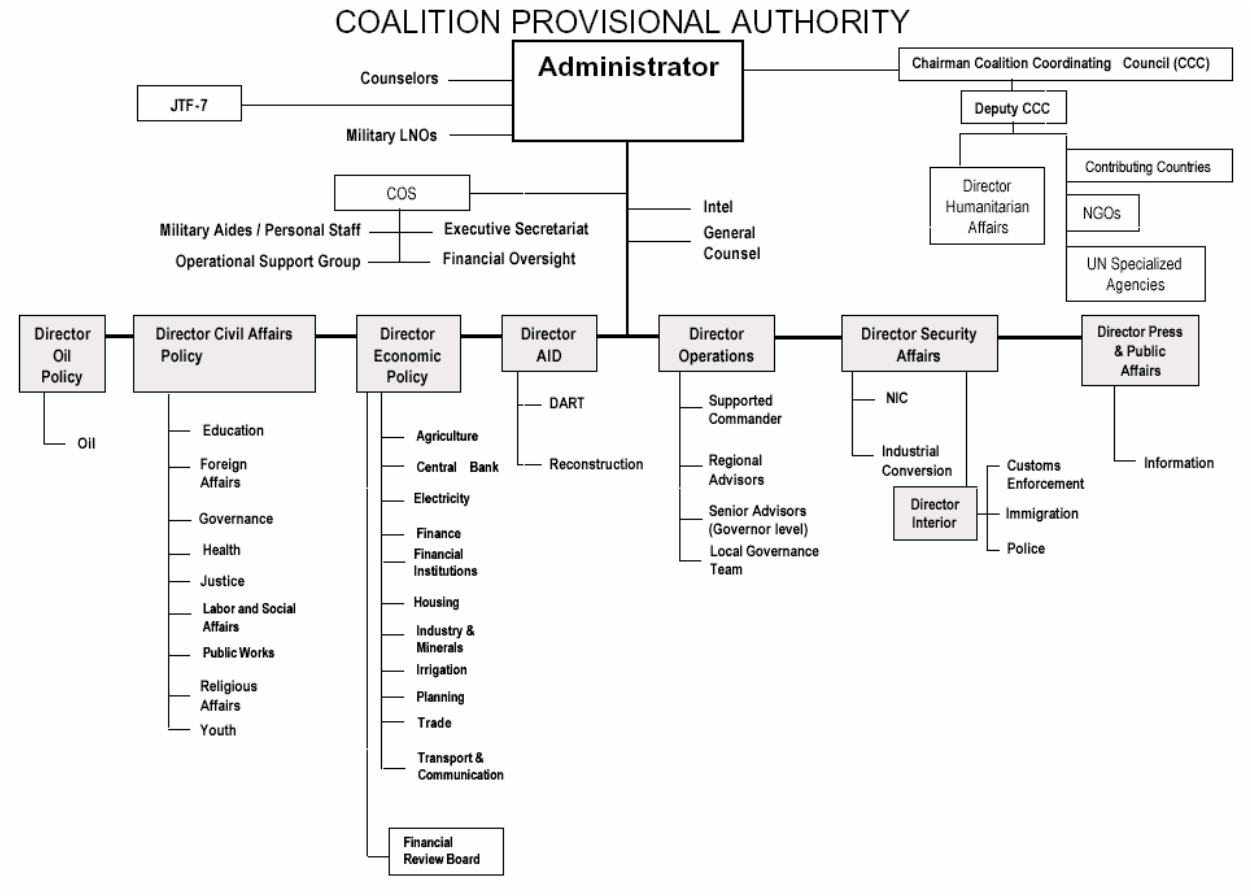


Table 2 Coalition Provisional Authority Structure
2207 Report to Congress
June 2003



IV. Coalition Engineers

During the war, engineers from various engineering groups in theater were pieced together to support Combined Joint Task Force–7 as it took over command of all military forces in Iraq after the end of combat operations. As the primary component in Iraq, the Army provided the majority of staffing for CJTF-7. This engineering group was composed primary of Army Combat Engineers from the theater commands. The CJTF J7 was a small group of engineers who had very little time to define its engineering mission or acquire resources before it was sent forward to Baghdad to become CJTF J7. Once in Baghdad, the engineer's primary focus was to support coalition forces engineering requirements along with the emerging repair of the Iraqi infrastructure. However, the majority of Combat Engineers are not degreed engineers and had little training or experience in major infrastructure repairs. (Army Combat Engineers are primarily trained to support maneuver forces with expedient bridging, mine clearing, terrain manipulation and other elements required to ensure successful maneuver operations.)

When CJTF J7 was formed, none of us envisioned that they would lead a major reconstruction effort. While senior leaders very much understood that Iraq's oil, water, sewer and electric infrastructure were critical to ensuring Iraq would recovery from the wars and Saddam's rule when they formed CJTF J7 no one understood the amount of engineering effort required to rebuild Iraq's critical infrastructure.

Chapter 8

RECONSTRUCTION FUNDING SOURCES

I. Funds Administrator

As director of the CPA, Ambassador Bremer was responsible for controlling all reconstruction funds in Iraq, setting program priorities and monitoring the progress of reconstruction efforts in Iraq. (The exclusion to this was the funds and tasked assigned to the CENTCOM commander in execution of his mission.)

II. Iraq Relief and Reconstruction Fund I (IRRF I)

On 12 April 2003, the US Congress authorized the first U.S. Government funding for reconstruction in Iraq. These funds were based on pre war estimates of infrastructure repair and priorities for conducting those repairs. Congress authorized $2.475 billion dollars toward reconstruction efforts in Iraq. $1.52 Billion of these funds were given to USAID and the Corps of Engineers, Gulf Region Division for repair of the electrical systems in Iraq. IRRF I funds were also allocated toward capital improvement projects for water and sewer systems, healthcare, education, transportation rule of law and governance. In recognition of the complexity of determining reconstruction requirements and priorities, Congress authorized the CPA to spend the money as necessary for the reconstruction of Iraq; however, Congress required CPA thru the office of Management and Budget to report to Congress every quarter on the status of the funds spent and planned allocation of the remaining funds.

III. Iraq Relief and Reconstruction Fund II (IRRF II)

Congress authorized and President Bush signed into law the Emergency Appropriation Act for defense and for the Reconstruction of Iraq and Afghanistan FY 2004 on 6 Nov, 2003. As part of this law, Congress authorized $18.649 Billion dollars toward the Iraq Relief and Reconstruction fund. This fund became know as IRRF II.

IV. Development Funds for Iraq (DFI)

DFI are a United Nations (UN) fund authorized under UNSCR 1483. These funds are generated primary from the UN "Oil for Food". In UNSCR 1483, The UN specified "The funds are to be used for the humanitarian needs of the Iraqi people, for economic reconstruction and repair of Iraq's infrastructure, for continued disarmament of Iraq, for the cost of Iraq's administration, and for other purposes benefiting the people of Iraq" (2207, Jun 2003). An initial deposit of $1 Billion was made into this account and the UN authorized the CPA to direct disbursement of the funds.

V. Iraqi State Assets

President Bush authorized Iraqi assets that were frozen or confiscated by the US government were to be used "For the benefit of the Iraqi people and their nation's recovery." These assets included $1.7 Billion in US controlled assets, $1Billion in assets that came under US control during the invasion (Gold and cash seized by US forces during the invasion) and $200 Million in Iraqi assets dating back to 1992 (2207, June 2003). (Table 3 shows non-DOD managed Iraqi funds) (Table 4 shows DOD managed Iraqi funds)

VI. International Donors

On 23-24 October, 2003 the first international donor's conference was held in Madrid. Conference attendees pledged $13 billion in support for Iraq; however, these pledges have not materialized as promised. (Approximately $1 Billion of the $13 Billion pledged has been provided.) (Table 5 is a summary table by donor)

VII. Department of Defense Funds Authorized for Iraq's Reconstruction

In 2003 Congress authorized the DOD to spend up to $489M in DOD funds to repair infrastructure in Iraq. In the FY 2005 the DOD supplemental appropriations provided $5.3 Billion for the training and equipping of Iraqi Security forces and $320 in Commander Emergency Relief Funds.

Commander Emergency Relief Funds are DOD budgeted funds which are spent by local commanders to meet the immediate reconstruction needs in his area of responsibility. As of Oct 2005, $718 million in total CEPR funds had been spent. (2207, June 2003)

VIII. Iraq Funds Generated by the Iraqi Government

These funds are primary generated from the sale of oil and average $15 billion/year. The spike in world oil prices increased Iraq oil revenue to $25-30 billion in 2005 and 2006. (Iraq's annual budget was approximately $15 Billion prior to the spike in oil prices.)

Table 3 Non - DOD Iraq Resources
2207 Report to Congress
June 2003

IRAQ RESOURCES MANAGED BY NON-DEPARTMENT OF DEFENSE (DOD) AGENCIES ($M)		
Funding	**Iraq Relief & Reconstruction Fund (Appropriated)**	**Other Accounts/Commitments**
	Apportioned	**Apportioned**
RELIEF		
USAID		
Office of Foreign Disaster Assistance (OFDA)		72.5
Office of Food for Peace (FFP) [including USDA]		478.0
Office of Transition Initiatives (OTI)		6.0
STATE		
Bureau of Population, Refugee, and Migration (PRM)		39.1
Bureau of Political-Military Affairs (de-mining)		1.5
SUBTOTAL, RELIEF	**0**	**597.1**
RECONSTRUCTION		
USAID/Bureau for Asia and the Near East (ANE)	239.1	110
STATE/Bureau for International Narcotics and Law Enforcement (INL)		25
TREASURY/Office of Technical Assistance (OTA)		2.2
SUBTOTAL, RECONSTRUCTION	**239.1**	**137.2**
TOTAL	**239.1**	**734.3**

Table 4
June 03 Iraq Obligated Funds
2207 Report to Congress
June 2003

DOD IRAQ RELATED RESOURCES OBLIGATED TO DATE ($M)		
Funding	**Iraq Relief and Reconstruction (Vested*)**	**Other Accounts/ Commitments****
Emergency Payments to State Employees, Pensioners, and Specialized Workers	158.5	
Ministry Startup and Other - Equipment and facilities repair	16.4	
Subtotal	**174.9**	
Natural Resources Risk Remediation - Removal of unexploded ordnance - Emergency repairs - Environmental assessments - Preparing facilities for production		175.0
ORHA Operating Expenses - Logistics/Headquarters support - Deploying and equipping -Other in-country costs		256.0
TOTAL	**174.9**	**431.0**

*Vested - Iraqi assets frozen under Executive Order 13290 transferred to DOD via the Iraq Relief and Reconstruction Fund
** These funds have been "cash-flowed" from other DOD accounts and are pending reimbursement from the Iraq Freedom Fund.

Table 5 International Donors Conference
2207 Report to Congress
Jan 2004

International Donors' Conference for Iraq
Madrid, October 23-24, 2003

Summary Table by Donor

Table 2

in USD millions

Donor	2004	2005-2007	Unspecified by Year	Total
Countries	569.59	758.62	25,118.50	26,446.71
Australia	45.58	0.00	0.00	45.58
Austria	1.94	3.53	0.00	5.48
Belgium	5.88	0.00	0.00	5.88
Bulgaria	0.64	0.00	0.00	0.64
Canada	0.00	0.00	187.47	187.47
China	0.00	0.00	25.00	25.00
Cyprus	0.00	0.00	0.12	0.12
Czech Republic	7.33	7.33	0.00	14.66
Denmark	26.95	0.00	0.00	26.95
Estonia	0.06	0.00	0.00	0.06
Finland	5.89	0.00	0.00	5.89
Greece	0.00	0.00	3.53	3.53
Hungary	1.24	0.00	0.00	1.24
India	10.00	0.00	0.00	10.00
Iran	5.00	0.00	0.00	5.00
Ireland	3.53	0.00	0.00	3.53
Iceland	1.50	1.00	0.00	2.50
Italy	0.00	0.00	235.62	235.62
Japan	0.00	0.00	4,914.00	4,914.00
Korea	0.00	0.00	200.00	200.00
Kuwait	0.00	0.00	500.00	500.00
Luxembourg	1.18	1.18	0.00	2.36
Malta	0.00	0.00	0.27	0.27
Netherlands	9.42	0.00	0.00	9.42
New Zealand	3.35	0.00	0.00	3.35
Norway	4.29	8.58	0.00	12.87
Oman	0.00	0.00	3.00	3.00
Pakistan	0.00	0.00	2.50	2.50
Qatar	0.00	0.00	100.00	100.00
Saudi Arabia	120.00	380.00	0.00	500.00
Slovenia	0.27	0.15	0.00	0.42
Spain	80.00	140.00	0.00	220.00
Sri Lanka	0.00	0.00	0.00	0.00
Sweden	0.00	0.00	33.00	33.00
Turkey	0.00	0.00	50.00	50.00
United Arab Emirates	0.00	0.00	215.00	215.00
United Kingdom	235.48	216.85	0.00	452.33
United States	0.00	0.00	18,649.00	18,649.00
European Community	235.62	0.00	0.00	235.62
EC + EU Member States + Acceding Countries	614.83	369.04	272.54	1,256.41
International Financial Institutions	1,350.00	4,200.00 — 7,900.00	0.00	5,550.00 — 9,250.00
IMF	850.00	1,700.00 — 3,400.00	0.00	2,550.00 — 4,250.00
World Bank	500.00	2,500.00 — 4,500.00	0.00	3,000.00 — 5,000.00
Total	2,155.21	4,958.62 — 8,658.62	25,118.50	32,232.33 — 35,932.33

This table summarizes pledges made at the International Donors' Conference for Iraq in Madrid, Spain, on October 23-24, 2003.

A pledge is an indication of intent to mobilize funds for which an approximate sum of contribution is specified.

Source for all exchange rates: IMF exchange rates in SDR terms for October 24, 2003

Amounts do not include identified humanitarian assistance (total of 115.17 M USD).

Amounts do not include export credits and guarantees: Austria 11.78 M USD, Saudi Arabia 500 M USD, and Denmark 154.54 M USD

The World Bank and the IMF announced a range of assistance.

Most donors were not able to specify the type of grant assistance at the time of the Donors' Conference.

Amounts unspecified between grants and loans are: Italy (235.62 M USD) and Qatar (100 M USD)

Many donors were not able to provide a breakdown of their by year.

The US pledged 20.3 B USD at the Donors' Conference, subject to Congressional approval. Subsequently, the US Congress approved 18.6 B USD in grants toward security and reconstruction needs.

In addition to the amount in the table above, Iran pledged an economic package, with an estimated value of 1,495 M USD, which includes credit facilities, restoration of religious sites, tourism and pilgrimage, technical and advisory services, trade, investment, market access, and humanitarian assistance.

Japan's assistance of 4,914 M USD consists of (i) grant assistance of 1,414 M USD for the immediate reconstruction needs of Iraq within the Japan's commitment, chiefly corresponding to the reconstruction needs anticipated through 2004; and (ii) assistance of up to 3,500 M USD, basically utilizing concessional yen loans, chiefly corresponding to the medium-term reconstruction needs for a period extending approximately through the year 2007, taking into account the situation of Iraq including security and the advancement of political process, the progress of the reconstruction projects, developments toward the solution of debt issue, and discussion of the international community etc.

In addition to the amount in the table above, Norway pledged up to 30 M NOK from NORAD's global facilities for promoting private enterprises.

The following countries offered in-kind assistance: Bahrain, Chile, Egypt, Germany, Jordan, Latvia, Mexico, Poland, Philipines, Portugal, Slovakia, Sri Lanka, Switzerland, Thailand, Tunisia, Vietnam.

Chapter 9

RECONSTRUCTION SECTORS

I. Funding Allocation

Congress allocated IRRF funds to be spent in ten categories or sectors. Congress also directed these funds to be track by the CPA by sectors and required the Director of Management and Budget along with the CPA to provide quarterly reports to Congress on spending allocation and reconstruction progress. While Congress allocated the funds by sectors, they authorized the CPA to reallocate funds as needed to meet Iraq reconstruction needs. Congress granted CPA the authority to move funds between sectors as needed; however, OMB and CPA are required to notify Congress quarterly when and why the funds are reallocated.

II. Sectors Funding

The Iraq Reconstruction sectors are Security and Law Enforcement, Justice and Public Safety, Electric, Oil Infrastructure, Water Resources and Sanitation, Transportation and Telecomm, Road, Bridges and Construction, Health Care, Private sector Development, Education, refugees and Human Right. (Figure 10 shows Iraq's provinces, local government structures within which the reconstruction sectors worked.) Table 6 shows OMB and CPA's initial 2004 budget for IRRF 1 and IRRF II funding. This table shows the initial funds allocation by sector and the estimated quarter when the funds will be allocated. The initial budget for these sectors is shown in Table 6. Detailed 2004 budget for IRRF funding are shown in the Appendix and detailed 2006 budget for IRRF funding are shown in Tables 11-13.

Figure 10

Iraq Provinces

2207 Report to Congress

Jan 2004

Table 6
IRRF I and IRRF II Initial Funding by Sector
2207 Report to Congress
Jan 2004

Estimated Iraq Relief and Reconstruction Fund (IRRF) Spending by Quarter

(millions of $)	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	FY 2005
Security & Law Enforcement	772	1,561	586	324	0
Justice, Public Safety	99	920	221	161	75
Electric Sector	434	1,210	483	867	2,566
Oil Infrastructure	0	1,600	101	0	0
Water Resources & Sanitation	18	402	322	652	2,939
Transportation & Telecomm	0	164	259	77	0
Roads, Bridges & Construction	0	33	153	73	112
Health Care	50	280	225	173	65
Private Sector Development	0	65	66	24	30
Education, Refugees & Hum Rights	15	124	84	58	0
Totals*	1,388	6,357	2,499	2,408	5,787

* Totals may not match due to rounding

The following are the spending priority for the IRRF funds. These priorities are based on the five principles of CPA' strategic plan (2207, Jan 2004)

A. Security: "To defeat terrorist and the Baathist and to provide a secure environment that enables Iraqi citizens to participate fully in political and economic life."

B. Essential Services: "To provide essential services and infrastructure especially electricity, water and health care at an acceptable standard accessible by all citizens."

C. Economy: "To provide financial market structure, as well as fiscal and regulatory conditions that will enable sustainable economic growth, the development of a dynamic private sector, the creation of jobs and raising living standards for the Iraqi people."

D. Governance: "To enable Iraqi to have a representative form of government that promotes the rule of law and protects the rights of all, including freedom of expression and religion practice, support by a vibrant civil society. This objective will be underpinned by a democratically agreed constitution, a transparent electoral process and political institutions that do not tolerate corruption, as well as an accountable and responsive system of local government."

E. Strategic Communication: "To foster unity of effort among Iraqis, Coalition nations and the international community in achieving the above objectives. Achievement of this goal will mean the Iraqi people participate in a sustained, informed, and active manner in the civic affairs of the country."

III. Security and Law Enforcement

The two pillars military planner insisted were necessary to conduct phase four operations were security and civic action. Military planners and operators were keenly aware that to reconstruct Iraq we needed a secure work environment. They understood that a strong Iraqi Military and Police force would be required to work with Coalition forces in order to achieve this environment. The Coalition went to great measure to ensure Iraqi military units were not indiscriminately targeted. Through communication efforts during the war, Coalition forces were able to get many of the Iraqi Army units to stand down and not engage. As Iraqi Army units stood down, Coalition Force bypassed these Iraqi Army units and left them intact. Coalition leaders understood the vast majority of the Iraqi military personnel were forced into service and had very little desire to defend Saddam Hussein. However, the Republican Guard units were the acceptation and they were dealt with overwhelming force when engaged.

During and immediately after the invasion, several events occurred which prevented use of Iraqi military units. During the invasion, many of the Iraqi Army personnel abandoned their units and went home. These personnel did not want to fight Coalition forces and when given the opportunity they left their units as quickly as possible. Many Iraqi military units vaporized within days in this manner.

Coalition military planers recognized that before they could use Iraq's military units after the war, many of the top-level leaders within Iraq's military would have to be removed or thoroughly vetted. This procedure was required due to senior leaders' strong ties with Saddam and the Baathe party. Coalition planners assumed that General officers and full Colonels would need to be removed of vetted and officers below the rank of Lt. Col and enlisted personnel would be reviewed on an individual bases. Shortly after taking office Ambassador Bremer decided to

dismiss the entire Iraqi Army and rebuild it from the ground up. Dismissal of the Iraqi Army left Coalition forces without an Iraqi military partner. Without a partner who understood the Iraqi people, terrain and culture, security immediately became more difficult than anyone anticipated. A result of the collapse and dismissal of the remaining Iraqi Army units was a lack of control of the military equipment and munitions stored through the country. During and after the invasion Coalition forces found massive amounts of unsecured munitions throughout Iraq. Without Iraqi troops or sufficient Coalition troops to secure the munitions, the munitions were taken.

The initial budget to reconstitute and train the Iraq military and police force was $3.243 Billion. This budget assumed training and equipping nine battalions of Iraqi Army units and thirty-six battalions of Iraqi Civil Defense Corps. Additionally, 35,000 police officers were to be trained, equipped and deployed to bring the total Iraqi police force to 85,000.

IV. Justice, Public Safety and Civil Society

This sector was funded at $1.476 Billion for protection of judges, assisting law enforcement and to bring Iraq's penal system up to international standards. Funds up to $10 million dollars were made available to assist Iraqi who suffered damage as a result of the war. Additionally this sectors funding was to be spent on development of political parties, promotion of democracy and public integrity (2207, Jan 2004).

V. Electrical

The electrical sector and the oil sector were identified prior to war the as critical sectors for the reconstruction of Iraq. Immediately after the invasion Task Force FAJR was created by the Corp of Engineers to manage the electrical reconstruction. Task force FAJR, working with USAID issued a contract to Bechtel in April 2003 for $1.2 billion to start reconstruction of Iraq's electrical infrastructure. This funding came from IRRF 1 funds appropriated by Congress on 12 Apr 2003 (Iraq Electrical Report, 2005). In November of 2003, Congress appropriated an additional $5.54 billion for reconstruction of the Iraq electrical infrastructure. By allocating $6.7 billion toward electrical reconstruction funding, Congress and the CPA looked to correct inherent system deficiencies and jump-start the Iraqi economy. Additionally, the UN's Developmental Funds for Iraq and other international donors contributed $3 billion towards the electrical reconstruction funding. The total funding allocated towards rebuilding Iraq's Electrical infrastructure was $9.75 billion (Iraq Electrical Report, 2005). However, due to inadequate planning, improper analysis, faulty contracting methods and insurgent activities, the availability of Iraqi generated electrical power today is approximately the same as it was before the war (Iraq Electrical Report, 2005). Like most sectors in Iraq, the electrical sector is a complex system affected by many variables, which the Coalition cannot control and we are just beginning to understand.

Prior to the first Gulf War, Iraq had a capacity of 9,295 MW; however, they were only capable of generating approximately 3,400 MW on sustained bases. Targeting of Iraq's electrical system by coalition forces during the first Gulf war left Iraq with a sustained capacity of approximately 2,300 MW. Between 1991 and the Iraq invasion in 2003, Iraq was able to upgrade their output

to approximately 4,200 MW. This represented only approximately 42% generating capability. Prior to the war in 2003, Iraq was generating 4,200 MW for an average of 13-15 hours a day. The majority of this power was going to Baghdad to meet Saddam's requirement fro power 24 hours a day (Iraq Electrical Report, 2005).

Iraq's generating capacity was substantially reduced because of their lack of maintenance, failure to invest in capital upgrades, UN sanctions and the use of sub-optimal fuel sources. Iraq's failure to capture and transport natural gas and to refine their crude oil products forced them to burn crude oil vs. natural gas or a high-grade diesel fuel. This caused efficiency reductions of up to 60% in generators, greatly increasing maintenance requirements and lowering the generators life span.

The Coalitions' failure to recognize Iraq's power generation practices prior to the war resulted in significant delays in starting the reconstruction process. Additionally, Iraq's electrical infrastructure was subject to massive looting during and after the war. Spare parts were stolen; transmission lines, cables towers and transformers were stolen along with vehicles and equipment. Looting of the electrical infrastructure was relatively easy and selling the component on the black market was lucrative.

During the war, Iraq hid gasoline supplies in their natural gas pipelines. These practices render many of Iraq's natural gas lines worthless. The pipelines were drilled by locals for the gas supply (common practice in the Middle East) and the liquid, vapors remaining in the lines made using the lines for natural gas extremely dangerous. Failure of Iraq's refining capability to

produce or separate natural gas along with their natural gas distribution system forced generating plants to operate with crude oil versus. natural gas.

The CPA issued cost plus contracts immediately after the war to restart the electrical infrastructure in Iraq. They believed the systems could be quickly restarted and issued contracts without fully understanding the scope of the reconstruction effort or all the requirements. Cost plus contracts allowed the contracts to bill for mobilization, security and containment of base camp cost often without accomplishing any work due to the perceived security treat. Additionally, the CPA in combination with the Ministry of Interior issues contracts to repair facilities that had no ready access of fuel. This lack of coordination with the CPA Oil sector and Minister of Oil resulted in non productive work and caused further delays in restarting the Iraq electrical network (Iraq Electrical Report, 2005).

Prior to September 2004, the electrical reconstruction strategy focused on rebuilding the existing infrastructure and adding new generating capacity. This approach was based on the following assumptions: The existing electrical system was intact and could be repaired. The Iraqi's could manage and fund their own electrical system. The Iraqi's could meet their electrical fuel needs through their refineries and pipeline network. By September 2004, the CPA realized the Iraqi electrical system could not operate anywhere near the installed capacity and never would with the equipment in place. They found the electrical distribution system to include transmissions lines, substations and local networks could not handle the existing loads and the Iraqi's were not capable of managing and funding their electrical system (Iraq Electrical Report, 2005).

Between 2003 and 2005, the Coalition was able to repair approximately 1,600 MW of existing generation and install 600 MW of new generation capacity. The Iraqi government had signed contracts with Iran and Turkey to import 150-250 MW of energy. While the overall electrical capacity has increased slightly over the past two years, the hours of available service has decreased due to a 37% increase in demand since the war. Iraqi's have purchased or acquired appliances such as air conditioners, TV's, refrigerators which have driven the demand for electrical power significantly higher (Iraq Electrical Repot, 2005).

The Iraq electric system is basically a government subsisted system. Iraq technically has a billing system for businesses and homes, yet they do not have metering capacity or means of regulating power. Individuals who want power simply connect to the nearest electrical line and wire to their home or business. This is a dangerous process and many Iraqi's are killed each year due to electrocution. Additionally, the ability to regulate power, control demand and build a comprehensive, reliable electrical system in this environment is impossible.

VI. Oil Infrastructure

Iraq has the second largest known supply of oil reserves in the world (110 Billion Barrels) and one of the largest supplies of natural gas (100 Trillion CF) (CPA Report, 2004). Oil provides 95% of Iraq's income and is absolutely critical part of Iraq's economy. However, neglect of the oil system under Saddam's rule and difficulty in securing distribution systems has resulted in significant short falls in production and sale of oil. An initial budget of $1.7 Billion dollars was allocated to rebuild the oil infrastructure with a goal of increasing production and income to the Iraqi economy.

Under the UN oil for food program, Iraq produced 2 million barrels per day (MBPD) and exported 1.3 million barrels per day in 2002. By 2004, Iraq was producing 2.5 MBPD and exporting 1.65 MBPD. This production resulted in approximately $15 billion per year in revenue to the Iraq economy. In 2005, the average production capacity was 2.1 MBPD and exports were 1.4 MBPD. The primary justification for the drop in production was due to insurgent activity particularly in northern Iraq. Figures 11 and 12 show the results of insurgent attacks on pipelines and oil storage facilities in Iraq. The northern oil fields and distribution pipelines running to Turkey have been heavily targeted. The insurgent activities in these areas have greatly impacted the oil production. Iraq's oil infrastructure is outlined in Figure 13.

While the oil production has fallen back to post war levels, the oil revenues have increased substantially due to the high oil price increase. The Iraq budget in 2003 was $15 Billion with oil accounting for approximately 95% of their revenue. In 2006, the Iraq budget is $33 Billion with oil accounts for 95% of the total revenue. (Revenue estimates from oil in 2005 were $24 Billion)

Oil has always been the economic backbone of Iraq and will continue to be the pre-dominate revenue source for the country. Securing the oil infrastructure in Iraq is extremely difficult; however, without a secure production, refinery and distribution systems, Iraq oil production and revenue source will continue to stumble along.

Figure 11

Oil Storage Facility (Northern Iraq)

Figure 12

Oil Pipe Line Fire

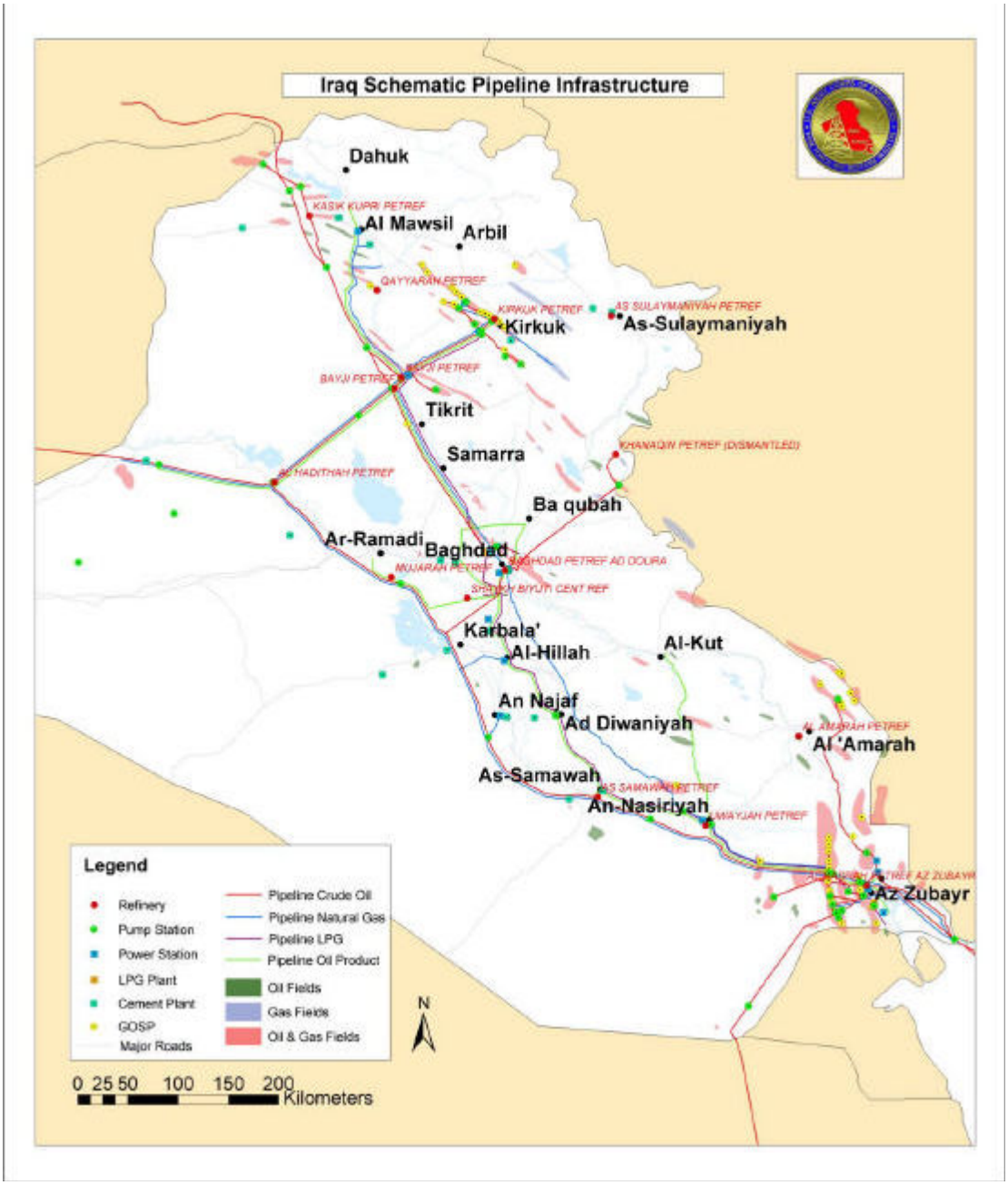


Figure 13

Iraq's Oil Infrastructure

2207 Report to Congress

Jan 04

VII. Water Resources and Sanitation

For a Middle Eastern country, Iraq has an amazing amount of water resources. The country is feed by the Tigress and Euphrates rivers and through rain, snow fall in the northern and eastern provinces. Prior to Saddam's rule, Iraq had a tremendous water infrastructure for potable water and for irrigation needs. (Figure 14 shows Iraq's water infrastructure.) The country had a thriving agriculture and fishing industry. However, under Saddam's rule, the water infrastructure was neglected and used for political purposes. This neglect left many areas of the country without clean water to drink and divested many of Iraq's agriculture areas. To help correct these deficiencies, the Water Resources and Sanitation sector was provides a budget of $4.332 Billion.

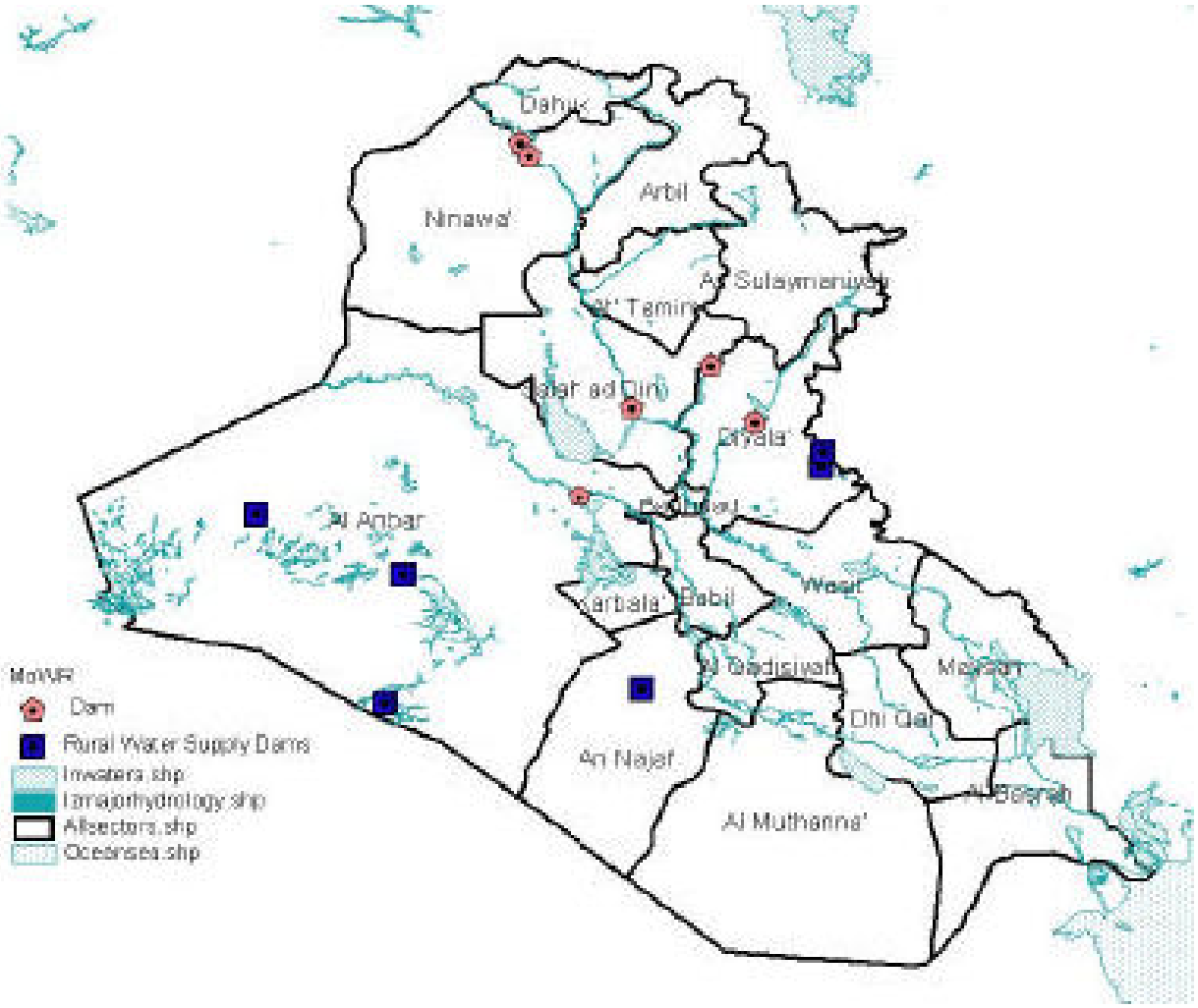


Figure 14

Iraq Water Infrastructure

2207 Report to Congress

Jan 2004

V. III. Transportation and Telecommunications

This sector was provided initial funding of $500 million to repair transportation systems such as railways, airports, and shipping channels and ports. Additional, funding is to be provided for the engineering and construction of a new telephone communication system to replace the extremely poor telecommunication system that was damaged during the war and afterward by looting. (2207, June 2003)

IX. Roads, Bridges and Construction

Initial funding for this sector was $370 million. Funds were allocated to repair roads, bridges and public building throughout Iraq. While damage to roads and public buildings during the war was small, Iraq' s neglect of it's public infrastructure and looting following the war made many of Iraq's public buildings unusable. (2207, June 2003)

X. Health Care

Initial funding for this sector was $793 Million to repair Hospitals and health care clinics. Iraq's health care system was in a state of collapse due to neglect. The high infant mortality rates and patients deaths from antiquated methods of providing care and insufficient health care supplies made using Iraq's medical facilities dangerous. Like other infrastructure in Iraq, the hospitals and health clinic were in desperate need of repair and upgrade. (2207, June 2003)

XI. Private Sector Development

Initial funding for this sector was $184 Million. Funds were allocated to provide vocational training, open employment centers and increase public and private sector development to reduce the estimate 30% unemployment in Iraq. (2207, June 2003)

XII. Education, Refugees and Human Rights

Initial funding for this sector was $280 Million. This funding was provided to reenergize Iraq's educational system, rebuild school and increase enrollment. Iraq prior to Saddam's rule had a good educational system with nearly universal primary school enrollment, and a substantial network of colleges and universities. Funds for this sector also included promotion of human rights and for increasing Iraq ability to investigate past and current human rights violations.

Chapter 10

LESSONED LEARNED

I. Phase Four

The military planning for the Iraq invasion began in late November 2001 and the invasion started in March 2003 (Franks, 2004). General Franks and the CENTCOM staff went thru multiple integrations and reviews of the Iraq Campaign plan during this period of time to refine operational concepts, ensure adequate personnel, material and equipment. During this process, General Franks and his staff outline four distinct phases to the campaign and identified phase four, post hostilities/reconstruction as the most critical phase and longest lasting phase of the Iraq campaign. While General Franks clearly recognized the importance of phase four operations, it appears that the military did not have a phase four plan. Rear Admiral David Nash who was in charge of the Iraq Reconstruction and Management Office and the Project and Contracting office from July 2003 to September 2004 stated that he and his staff, who were responsible for starting and implementing the reconstruction, were not given a plan prior to assuming responsibility or while they were there (Forbes, 2006). My observations and the engineer I worked with sustain Admiral Nash's point. I cannot find any documentation of a defined reconstruction plan or phase four plan for Iraq. While General Franks and his staff recognized the importance of phase four operations, it appears they did not conduct detailed planning for this phase. General Frank's indicates that ORHA was responsible for phase four planning and operation. However, ORHA was an independent agency established by Secretary Rumsfeld that reported directly to the Secretary not the COCOM. CENTCOM through Gen Franks was responsible for planning and execution of the Iraq campaign of which phase four was clearly identified as the most important

and critical phase; However, it appears the COCOM and his staff were not tasked for this phase. Splitting responsibility or poorly defining the lines of responsibilities for a military operation greatly increases the opportunity for poor execution or failure.

II. The Office of Reconstruction and Humanitarian Assistance

ORHA was established to run reconstruction and humanitarian operations in Iraq after the end of combat operations. However, ORHA was not provided with adequate staff, funding or direction to accomplish the scope of work required in Iraq. This lack of staff, funding support and a poorly defined mission left ORHA unprepared to execute its mission. ORHA failed to adequately research post war requirements, develop a plan for reconstruction or coordinate adequately with Coalition military forces. It could be argued that ORHA never should have been established. Phase four operations were identified by CENTCOM planners and should have remained CENTCOM's responsibility.

III. Ambassador Bremer

Ambassador Bremer appointment as the head of the CPA (leader in Iraq) was justified by his experience as a diplomat. "ORHA's lack of expertise in high level diplomatic negotiation and politics" was used as justification for replacing ORHA with Ambassador Bremer (Bremer, 2006). However, Ambassador Bremer was not proposed through the State Department, he was proposed to President Bush through the Secretary of Defense. Additionally, Ambassador Bremer reported to the President through the Secretary of Defense not thru the Sectary of State. If the position required a diplomat and the individual was required to function as the intern head of state, why was he not selected by the State Department and why did he not report through the

Secretary of State? Prior to 9 May 2003, Ambassador Bremer had no involvement in the planning or execution of the Iraq invasion. CENTCOM's staff and General Franks had planned for over 15 months for the invasion. Ambassador Bremer had no involvement in the planning or execution of the invasion nor did he have an understanding of the events taking place in Iraq other than what he observed on television. If phase four operations were as critical as General Franks stated, why was Ambassador Bremer not involved in planning prior to the war? Why was he brought in to replace an individual that had been operational less than three weeks? Ambassador's Bremer's position was that President Bush never intended ORHA's leader, Lt. Gen. Garner (USA Ret), to be his permanent envoy to Iraq is likely true. Ambassador Bremer's contention that he possessed the "skills and experience necessary for that position" is questionable (Bremer, 2006). Ambassador Bremer served as a State Department Staff Officer, Ambassador to the Netherlands and Ambassador at Large for Counter Terrorism. He did not have military experience, major leadership responsibility nor experience running large organizations. He did not have any experience in establishing or installing a country's government or in repairing a country as devastated as Iraq. The transition to a State Department led organization should have occurred. However, this transition should have taken place after an Iraqi government organization was in place and after consultation with other branches of the US Government, Coalition partners and the UN.

IV. Infrastructure Condition

The reconstruction requirements in Iraq were not understood or planned for prior to the invasion. The lack of maintenance, capital investment and poor operational practices left much of Iraq's infrastructure in a state of collapse. 84% of Iraq's people did not have a working sewage system

and 40% of the people did not have potable water (Forbes, 2006). The electrical systems were failing and Iraq's oil infrastructure lacked basic parts and adequate maintenance. Alternative approaches to achieve the stated objectives may have been pursued if the condition of Iraq's infrastructure was known prior to the war and the cost to repair it were understood by civilian and military planners.

V. Looting

The extent and long-term implication of the looting that went on in Iraq after the invasion was not recognized or understood by Coalition forces. Initial perceptions were the Iraqi people were merely taking furniture and appliances from government building as revenge; however, the looting went much deeper than that. The looters destroyed almost all government buildings and much of Iraq's vital infrastructure. If the looting had been stopped immediately after the invasion, the US government could have saved several billion dollars in reconstruction funds and possible a year of reconstruction time. The Coalition did not recognize the extent of damage looters were inflicting, nor did they have enough troops in Iraq to stop the looting and secure the government buildings.

VI. Troop Levels

In 2002 the Army Chief of Staff testified that up to 500,000 troops would be required to provide security in Iraq after the invasion. General Franks had estimated that 250,000 troops might be required for phase four operations. Immediately prior to Ambassador Bremer coming to Iraq he discussed with President Bush an estimation by the RAND Corporation that 500,000 troops would be required to provide security. The Coalition has averaged approximately 150,000

troops on the ground over the past three years. This level of troop deployment is insufficient to maintain security throughout Iraq. By 2005, engineers found the lack of security had significantly slowed down reconstruction efforts and directly increased reconstruction cost by 20-30%.

VII. Iraq Army

Paul Bremer was appointed as the head of the Coalition Provisional Authority on 9 May 2003. Within weeks after he arrived in Iraq, Mr. Bremer dissolved the Iraqi Army. This action differed from the Coalition's direction prior to and during the war and may have been one of the critical factors in the resulting security failure throughout the country. During the war significant portions of the Iraqi Army were left intact to allow them to provide internal and external security for their country. Dismissal of 400,000+ trained troops left a sizeable portion (potentially 2+ million Iraqi's out of population of 26 million) of Iraq's population without an income source and may have provided a well-trained pool of recruits for the insurgents. The effect of this action had a divesting impact on the morale of Iraq's people, especially career military members. The dismissal of the military, security forces and subsequent increase in insurgent activities combined with the bureaucracy and inefficiency of the CPA led reconstruction effort caused the rebuilding effort to slow significantly. The insurgent's attacks on the oil, power and facility infrastructure appeared to have significantly slowed rebuilding effort in 2004.

VIII. Iraq Construction

The combination of conservative government contracting officers, engineers and project managers along with risk adverse US construction firms resulted in a year and a half of limited

construction progress. From midyear 2003 to late 2004, real construction proceeded at a slow pace. The failure to execute vital construction and repair projects during the eighteen months after the invasion lead to tremendous frustration among the Iraqi people. The Iraqi's frustration with the Coalition's inability to repair infrastructure and improve their lives a year and half after the invasion may have resulted in increased insurgent activities.

IX. MNSTCI

After a year of struggling to rebuild the infrastructure in Iraq and reverse the worsening security trend, President Bush establish the Multi National Security Transition Command Iraq (MNSTC-I) in May 2004. MNSTC-I was given the mission to organize, train, equip, and mentor Iraqi Security Forces in order establish security within Iraq and to support Iraq's ultimate goal of a unified, stable and democratic country (Petreaus, 2005). To accomplish this mission, MNSTCI had to recruit, train and equip a new Army, Air Force, Coast Guard, Police Force and Border Forces. MNSTCI's Engineers role in reconstructing Iraq's security forces was to repair and build new recruiting centers, training bases, permanent bases, barracks and operational facilities throughout Iraq (Petreaus, 2005). The construction program to stand up Iraq's security forces has turned into one of the largest rebuilding effort in Iraq. "Helping the Iraqis develop their capability is now seen clearly by coalition leaders as the main avenue to success in the accomplishment of our Coalition- including Iraqi- long term security objective" (Petreaus, 2005). The MNSTCI construction budget for security forces only was over $1.9B and was expected to grow by another $1.2B. The overall budget for security and law enforcement in Iraq was over $5 Billion. (The formation of MNSTCI and high levels of funding recognized that without

security, the reconstruction programs would continue on indefinably and Iraq may never be able to form an independent and stable government)

The 2003 decision to dismiss the Iraqi Military and Security Forces left the Iraqi military and police facilities and infrastructure open to continuous looting and to occupancy by squatters. MNSTCI engineers quickly found that we had to completely rebuild the security civil infrastructure completely. After 2 years of occupancy and looting by Iraqis the facilities that Iraqi police and military used were often in such disrepair that they had to be built new or undergo major reconstruction to get the facilities in operational condition.

The unique challenges of doing construction in Iraq combined with the national security priority to stand up the Iraqi security force quickly presented MNSTCI's engineering staff with unique challenges. The "Iron Triangle of Engineering where cost, schedule and quality hold equal importance" was not an option for MNSTCI Engineers (Petreaus, 2005). In 2004 when MNSTCI was formed, standing up Iraq's security forces quickly became the number one priority in Iraq. As a result of this priority, construction quality standards went from an excellent to a good requirement. Cost went from cheapest to reasonable, taking into account the execution time line and the poor security situation in Iraq. "This triangle shift was a difficult issue not just for the engineers but also for the contracting officers who had always been trained to follow the Federal Acquisition Regulation (FAR) model where quality and price (cheap) are the driving factors" (Petreaus, 2005). (The FAR guidance was written for peacetime application in the US where security is not a cost factor and construction time requirements are not nearly as critical.) The state side construction and contracting habits and procedures were not only issues for

government employees; they were also issues for large US construction firms. These firms were accustomed to working in a secure environment where they could use historical databases to quantify and mitigate their risk factors ensuring a profitable job. In Iraq no such database existed.

Within months of establishing the command, MNSTCI's leaders and engineers recognized they could not accomplish their mission with the engineering and contracting procedure used to date in Iraq. Early MNSTCI projects, which were given to the Corps of Engineers and the Project Contracting Office (PCO) for execution, were still being studied or scoped six months later. Realizing the impact of this logjam, MNSTCI leaders increased their engineering staff from seven engineers to thirty-one and brought in contracting agencies such as Air Force Center for Environmental Excellence (AFCEE). These agencies brought over their staff and their contractors and set up offices within the command. Using Indefinite Delivery Indefinite Quantity (IDIQ) contracts, these agencies executed task orders within a week of receiving the funds and generally had construction started within two to three weeks of issuing the task order. This was dramatically different from previous construction procedures where a project would take one to two years to go from requirement identification to completion (Petreaus, 2005).

X. AFCEE

AFCEE success stemmed from using small to medium size engineering and contract management companies. These companies were eager to work and prove to the US Government that they could execute engineering and construction projects worldwide. (PCO and Joint Contracting office generally used large US corporations, which demonstrated little flexibility or

capability to accomplish the work quickly) This method is now being applied in other sectors as sector managers realize their projects are stagnating while funds are being consumed by excess overhead and security cost.

Typically MNSTCI and AFCEE projects were executed by the following procedure: The MNSTCI, Coalition Civilian Police Assistance Training Team (CPATT) or Coalition Military Assistance Training Team (CMATT) staffs would identify a requirement to build or reconstruct a new base, police station, border outpost etc. Senior leadership within MNSTCI would approve the requirement. MNSTCI funds would be identified and a military engineer would be assigned to the projects. The military engineer would survey the site, often with the contractor, develop the engineering Scope of Work (SOW) and work with the Contracting Officers Representative to define, negotiate and write the Task Order. This information would then be relayed back to the agency's Contracting Officer (CO) in the states where the final task order would be negotiated and signed. Often this process was complete within one to two weeks of project approval. Occasionally, travel difficulties slowed the process; however, with aggressive use of government transportation and Private Security Detail (PSD) teams, the travel rarely became an issue. Often this overall process occurred within two to four weeks. Sometimes requirements were identified, approved and contracted within the same week.

Due to the critical time requirements for MNSTCI projects, they were often started within days of task order award and completed within months versus the year or more for a normal Iraqi project. (We awarded and oversaw a $38M construction project to design and build a new training base and provide beneficial occupancy for 1800 personnel within four months.)

To ensure quick execution, the contractors established local relationships throughout the country and used local labor almost exclusively to complete the work. (Iraq is composed of several tribes and establishment of personnel relationships with tribal leaders was essential to accomplishing work within that tribe's borders.) Construction methods were sometimes basic and always labor intensive due to the large number of unskilled workers. Construction work that in the west would be accomplished using heavy construction equipment, bulldozers, graders etc, and minimal labor was usually accomplished by hand. It was not uncommon to see 300-700+ laborers working at a site. Heavy construction equipment was not plentiful within Iraq; however, if the schedule required this equipment it would show up on the job site with operator, accomplish the task and disappear. (There was a brisk movement of material and equipment across Iraq's borders to meet the unprecedented construction demand.) Figures 15-20 show typical Iraqi construction methods and material.

Figure 15
Al Kut, Combined Academy (Large Manual Labor Pool)
(Traditional brick construction)

Figure 16

Al Kut, Combined Academy (Typical Masonry Construction)

Figure 17

Al Kut, Combined Academy (Use of Light Equipment)

Figure 18

Security and Justice (Academy Construction)

Figure 19

Security and Justice Academy Construction

(Basic Construction Methods)

Figure 20

Security and Justice (Academy Construction, Labor)

US contractors always provided contract management. Usually the contractors provided two to six onsite managers with interpreters, who would schedule the project, coordinate with the Iraqi labor leaders, material suppliers and provide quality control for the project. These Construction Managers (CM) were invaluable to ensuring the project was completed on time and within an acceptable quality standard. These CM worked fourteen to fifteen hour days; seven days a week and were paid a premium salary. The majority of the time these CM delivered their projects within our financial, time and quality requirements and where well worth their pay.

Due to the critical requirements to complete construction or renovation projects for Iraq's Security Force, MNSTCI and the Iraqis often took beneficial occupancy of the facilities at the 70%-80% completion level. This required the contractors to complete the work with Iraqi security forces living and working in the facilities. While this was not ideal, our requirement to train, equip and house Iraqi Forces required us to follow this path. Often this delayed final completion of the project; however, the mission requirements were met and we achieved the desired construction performance. (Figure 21 shows a completed Border Fort)

Figure 21

Iraqi Border Fort (Complete)

XI. Project Example

In late February, I was directed to construct an 800 man Department of Border Enforcement (DBE) Academy in Basrah and to have it operational by July. (The DBE is responsible for all border and port security in Iraq) We had an existing DBE Academy in Basrah training approximately 150 students and we had a contract to enlarge it to a 300-person academy. However when we surveyed the site in early March, we discovered the existing academy location could not support an 800-man academy and the existing site was in an area that we could not secure. (The site was located in a port area with a recruiting center in front of it which had been attacked several times). We looked at a proposed site outside of town, which we had a contract on to build a Police Academy. This site had 138 acres available with minimal existing infrastructure.

We decided to build a combined DBE, Police and Public Order Battalion on the site. We discussed requirements and cost with our contractors and Contracting Officer Representative and agreed upon a general scope and cost for the project. Within a week of the site survey the Contracting Officer issued a notice to start work and construction started before the end of the month. We spent the next several months reviewing design and cost issues which at times became difficult; however when I left in June the project was on schedule, budget and we anticipated meeting the Beneficial Occupancy date required. (Figure 22 shows initial construction of the joint academy. Figures 23-27 show typical Iraqi constructions methods and material)

Figure 22

Initial Construction

Joint Border Enforcement and Police Academy

Figure 23

Security and Justice (Academy Construction, Building Material)

Figure 24

Security and Justice (Academy Construction Types)

Figure 25

Security and Justice (Academy Construction, Finishing)

Figure 26

Security and Justice (Academy Construction, Typical Roof)

Figure 27

Security and Justice (Academy Construction, Roof Reinforcement)

XII. Current Direction

Building on the success of MNSTCI, the Coalition has moved away from executing large projects with large US Corporations towards working with Iraqi government officials and local contractors on smaller projects. This has allowed for quicker project execution, lower cost and increased credibility of government officials.

The Coalition now recognizes the importance of local customs and traditions in executing reconstruction projects. Initial efforts centered on Western style construction where bids were requested and contractors were brought in from outside of the region or province to work. Sometimes workers were brought in from other countries to work. These methods completely ignored local and tribal leaders, customs, territories and traditional methods of conducting business. The Coalition's shift towards working with local leaders and focusing on meeting their local needs has allowed construction to proceed much quicker with less loss of life and often at less cost. Additionally, allowing Iraqis input on which projects should be completed, how the projects should be constructed and by who, has given Iraqi pride in ownership and moved many projects through that may otherwise have been delayed due to security and logistic concerns.

Based on lessons learned from the Iraq and Afghanistan, the DOD has recognized that having the ability to foster stability and reconstruction should be one of its core missions. The State Department in 2004 created the Office of Coordinator for Reconstruction and Stabilization with many of the new offices staff coming from the DOD, CIA and other government agencies. These efforts by US government agencies are in response to the difficulties the US has had in post-conflict repair and reconstruction.

Chapter 11

CONCLUSION

I. History

The Iraqi reconstruction is the largest reconstruction effort since the European Recovery Act (Marshal Plan) with over $18B provided by the US government and $2.7B provided by international donors through the summer of 2005 (Petreaus, 2005). Without question the US and our Coalition partners have made mistakes in executing the Iraqi reconstruction program. Failure by intelligence analysts, engineers and senior leaders to recognize the poor condition of the Iraq's civil infrastructure prior to and after the war delayed adequate reconstruction funding and staffing levels for a year. Failure to establish, adequately staff and fund a phase four reconstruction staff at least a year prior to war and requiring that staff to produce and coordinate a realistic reconstruction plan was a mistake. Ignoring experienced military and civilian analysts recommendations on troop levels required to maintain security complicated reconstruction efforts, increased reconstruction cost by 20-30% and delayed implementation of democratic reforms. Replacing ORHA leader and limited staff three weeks into phase four operations caused major confusion, resentment and reconstruction delays. The decision to dismiss the Iraqi military, police force and Iraq's government leaders created confusion and resentment among the Iraqi people. Awarding cost plus contracts to large bureaucratic US corporations delayed implementation of reconstruction projects and significantly increased the cost of rebuilding Iraq. Contracting Officers and Engineers trying to apply stateside contracting and constructing protocol within a hostile combat environment proved a failure. Ignoring local customs, tribal

leaders and traditions caused resentment among Iraqi leaders and people and wasted valuable time. These mistakes are serious and have significantly damaged our reputation within Iraq, the Middle East and through-out the world. These mistakes prolonged reconstruction time, limited the success of reconstruction efforts and may have increased the length of time and number of combat troops required to maintain security within Iraq.

II. Path Forward

While we continue to make mistakes in rebuilding Iraq, the model developed by MNSTCI and adapted by the CPA where requirements are identified, funded, sourced and executed using local labor and standards is enabling Coalition forces to complete work within months versus years. This model is providing the Iraqi Security Forces with training and operational bases that will allow them to meet the security requirements of their country. Additionally, MNSTCI's execution success is putting tremendous pressure on other government agencies and their contractors to execute. Contractors taking six months to study a task or a year to execute are being evaluated closely to determine if they bring any value to the reconstruction process.

The last three years have demonstrated the difficulties the Coalition forces have in stopping the insurgents through the use of limited military force and that we have not done enough to win the Iraqi people's trust. The Coalition's effort to establish and support an independent and democratic Iraqi government capable of managing and securing their people is the correct course of action. By establishing and assisting the Iraqi security forces to maintain reasonable security within Iraq, we will enable our contractors and the Iraqi people to repair and improve their civil infrastructure and rebuild their economy.

The conclusions derived from this research were the following: (1) there was insufficient phase four planning, (2) the phase four chain of command was broken, (3) the security failed due to insufficient troop levels, (4) planners failed to research and plan for Iraq's failed infrastructure (5) Senior military leaders and analyst concerns were ignored. There are however, many successes in the reconstruction process and through applying lessons learned the Coalition is completing the mission of rebuilding Iraq. Iraq has a tremendous amount of natural resources, the people have a will to move forward and take control of their own destiny. If the Iraqi people assume control of their country, maintain security and stop the insurgent activity they will see dramatic improvements in their lives. Iraq has great potential to become the model for a stable and democratic Middle Eastern government. However, this process will take years to complete and Coalition experts including engineers will be required during and after this process to ensure the Iraqi people's basic needs are met, the economy is allowed to grow and to ensure a democratic and independent government remains stable.

APPENDIX: FUNDING TABLES

Tables 7
2004 IRRF Spending Categories (A)
2207 Report to Congress
Jan 2004

Iraq Relief and Reconstruction Fund (IRRF) -- Spending Plan										
Millions of Dollars				ESTIMATES						
Category	Request	Conference	CPA Allocation	1stQ	2ndQ	3rdQ	4thQ	FY 2005	TOTAL	Contracting Activity (See Key)
Security & Law Enforcement	**3,283**	**3,243**	**3,243**	**772**	**1,681**	**588**	**324**	**0**	**3,243**	
Law Enforcement	1,217	1,167	1,331	246	653	235	197	0	1,331	--
--Police Training and Technical Assistance	*960*	*960*	*960*	*246*	*422*	*160*	*122*	*0*	*960*	*5,11,16*
-- Traffic Police	*50*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*--*
-- Border Enforcement	*160*	*160*	*300*	*0*	*160*	*75*	*75*	*0*	*300*	*3,6,7,8*
-- Facilities Protection Services	*67*	*67*	*51*	*0*	*51*	*0*	*0*	*0*	*51*	*3,5,7,8,11,12 14,16*
National Security	2,076	2,076	1,912	526	908	351	127	0	1,912	--
-- New Iraqi Army	*2,000*	*2,000*	*1,712*	*416*	*676*	*321*	*97*	*0*	*1,712*	*--*
of which:										*--*
-- NIA Facilities	*745*	*745*	*602*	*239*	*363*	*9*	*2*	*0*	*602*	*3,4,6,7,8*
-- NIA Equipment	*679*	*679*	*716*	*61*	*346*	*243*	*66*	*0*	*714*	*7,8,11,14*
-- NIA Operations and Training	*376*	*376*	*396*	*116*	*179*	*70*	*30*	*0*	*396*	*7,8,11,14*
-- Civil Defense Corps	*76*	*76*	*200*	*110*	*30*	*30*	*30*	*0*	*200*	*--*
of which:										*--*
-- Operations and Personnel	*66*	*66*	*149*	*69*	*30*	*30*	*30*	*0*	*149*	*7,8,14,16*
-- Equipment	*17*	*17*	*51*	*51*	*0*	*0*	*0*	*0*	*51*	*7,8,14*
Justice, Public Safety Infrastruoture, and Civil Society	**1,843**	**1,318**	**1,478**	**98**	**920**	**221**	**161**	**76**	**1,476**	
-- Other Technical Investigative Methods	*10*	*10*	*6*	*0*	*2*	*2*	*2*	*0*	*6*	*5,7,12,14*
-- Witness Protection Program	*100*	*75*	*40*	*0*	*15*	*15*	*10*	*0*	*40*	*7,8,14,16*
-- Penal Facilities	*400*	*100*	*100*	*0*	*33*	*33*	*33*	*0*	*100*	*3,4*
-- Reconstruction and Modernization of Detention Facilities	*109*	*109*	*124*	*0*	*42*	*41*	*41*	*0*	*124*	*3,4*
-- Facilities Protection, Mine Removal, Fire Service, and Public Safety Facility and Equipment Repairs	*600*	*400*	*276*	*0*	*216*	*30*	*30*	*0*	*276*	*--*
of which:										*--*
-- [Demining]	*[51]*	*[51]*	*[51]*	*0*	*[51]*	*0*	*0*	*0*	*0*	*11*
-- Public Safety Training and Facilities	*274*	*199*	*149*	*0*	*149*	*0*	*0*	*0*	*149*	*3,5,7,8,16*
-- National Security Communications Network	*150*	*90*	*90*	*0*	*25*	*50*	*15*	*0*	*90*	*7,8,14*
-- Investigations of Crimes Against Humanity	*100*	*75*	*75*	*0*	*40*	*25*	*10*	*0*	*75*	*3,4,6,7,8,11,12,14, 16*
-- Judicial Security and Facilities	*200*	*150*	*150*	*0*	*30*	*25*	*20*	*75*	*150*	*6*
-- Democracy Building Activities	*0*	*100*	*455*	*99*	*359*	*0*	*0*	*0*	*458*	*1,6,11*
-- U.S. Institute of Peace (USIP)	*0*	*10*	*10*	*0*	*10*	*0*	*0*	*0*	*10*	*16*

Table 8
2004 IRRF Spending Categories (B)
2207 Report to Congress
Jan 2004

Iraq Relief and Reconstruction Fund (IRRF) -- Spending Plan										
Millions of Dollars				ESTIMATES						
Category	Request	Conference	CPA Allocation	1stQ	2ndQ	3rdQ	4thQ	FY 2005	TOTAL	Contracting Activity (See Key)
Electric Sector	5,675	5,566	5,566	434	1,219	483	867	2,566	5,566	
-- *Generation*	2,900	2,810	2,810	434	400	100	300	1,576	2,810	1,3,6
-- *Transmission*	1,550	1,550	1,550	0	658	33	117	742	1,550	1,3,6
-- *Network Infrastructure*	1,000	1,000	1,000	0	77	300	400	223	1,000	1,3,6
-- *Automated Monitoring and Control System*	150	150	150	0	50	50	50	0	150	1,3,6
-- *Institutional Strengthening*	25	0	0	0	0	0	0	0	0	--
-- *Security*	50	50	50	0	25	0	0	25	50	7
Oil Infrastructure	2,100	1,896	1,701	0	1,606	101	0	0	1,701	
-- *Infrastructure*	1,200	1,200	1,200	0	1,200	0	0	0	1,200	2
-- *Emergency Supplies of Refined Petroleum Products*	900	690	501	0	400	101	0	0	501	2
Water Resources and Sanitation	4,585	4,332	4,332	18	402	322	652	2,939	4,332	
Public Works Projects	3,710	3,557	3,557	18	358	279	462	2,441	3,557	--
-- *Potable Water*	2,830	2,830	2,830	0	273	201	401	1,955	2,830	1,3,6,8,13
-- *Water Conservation*	30	30	31	0	15	16	0	0	31	1,6
-- *Sewerage*	697	675	675	0	70	60	90	485	675	1,3,6,8,13
-- *Solid Waste Management/Trash Trucks*	153	0	0	0	0	0	0	0	0	--
-- *Other Solid Waste Management*	0	22	21	18	0	2	1	0	21	1,3,6
Water Resources Projects	875	775	775	0	44	43	190	498	775	--
-- *Pumping Stations and Generators*	150	150	159	0	44	23	93	0	159	1,3
-- *Irrigation and Drainage Systems*	130	130	128	0	0	0	10	118	128	1,3
-- *Major Irrigation Projects*	130	130	151	0	0	5	21	126	151	1,3
-- *Dam Repair, Rehab, and New Construction*	125	125	152	0	0	16	27	109	152	1,3
-- *Umm Qasr to Basra Water Pipeline and Treatment Plant*	200	200	114	0	0	0	28	85	114	1,3
-- *Marsh Projects*	100	0	0	0	0	0	0	0	0	--
-- *Basra Channel Flushing*	40	40	71	0	0	0	12	59	71	1,3
Transportation & Telecommunications Projects	835	500	500	0	164	259	77	0	500	
-- *Airports*	165	165	115	0	0	115	0	0	115	1,3,6,8
-- *Umm Qasr Port Rehab*	45	45	40	0	40	0	0	0	40	1,3,6,8
-- *Railroad Rehab and Restoration*	303	300	210	0	84	84	42	0	210	1,3,8,13
-- *Iraqi Telecom and Postal Corporation*	124	100	20	0	5	10	5	0	20	8,13
of which:										--
-- *[Postal IT ZIP Codes]*	[10]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	--
-- *Iraqi Communications Systems*	109	95	90	0	30	40	20	0	90	8,13
of which:										--
-- *[Business Practices for Iraqi TV and Radio]*	[10]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	--

Table 9
2004 IRRF Spending Categories (C)
2207 Report to Congress
Jan 2004

Iraq Relief and Reconstruction Fund (IRRF) -- Spending Plan										
Millions of Dollars				ESTIMATES						
Category	Request	Conference	CPA Allocation	1stQ	2ndQ	3rdQ	4thQ	FY 2005	TOTAL	Contracting Activity (See Key)
– [Numbering Scheme 911 Initative]	[4]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	--
– Iraqi Communications Operations	89	75	25	0	5	10	10	0	25	8,13
– Undistributed Reduction	0	-250	0	0	0	0	0	0	0	--
Roads, Bridges, and Construction	470	370	370	0	33	153	73	112	370	
– Housing Construction	100	0	0	0	0	0	0	0	0	--
– Public Buildings Construction and Repair	130	130	130	0	13	33	33	52	130	3
– Roads & Bridges	240	240	240	0	20	120	40	60	240	3
Health Care	850	793	793	50	280	225	173	65	793	
– Nationwide Hospital and Clinic Improvements	393	443	443	0	175	150	118	0	443	1,3,13
– Equipment Procurement and Modernization	300	300	300	0	105	75	55	65	300	8,13,14
– Pediatric Facility in Basra	0	50	50	50	0	0	0	0	50	1, 13
– Initiate 700m Basrah Hospital Project	150	0	0	0	0	0	0	0	0	
– Health Care Partnerships	7	0	0	0	0	0	0	0	0	--
Private Sector Development	353	153	184	0	65	66	24	30	184	
– American-Iraqi Enterprise Fund	200	0	0	0	0	0	0	0	0	--
– Expand Network of Employment Centers	8	8	8	0	6	2	1	0	8	13
– Training	145	100	132	0	54	39	9	30	132	8,13,15
– Micro-Small-Medium Enterprises	0	45	44	0	5	25	14	0	44	8,13,14
Education, Refugees, Human Rights, Democracy, and Governance	300	280	280	15	124	84	58	0	280	
– Migration & Refugee Assistance	105	105	105	0	41	28	36	0	105	11
– Local Information Centers	90	0	0	0	0	0	0	0	0	--
– Property Claims Tribunal	30	30	30	0	15	10	5	0	30	11,13
– Banking System Modernizations	30	30	30	5	17	8	0	0	30	9,13
– Business Training Courses	20	0	0	0	0	0	0	0	0	--
– Human Rights	15	15	15	0	12	4	0	0	15	11,13,15
– Education	0	90	90	10	29	34	17	0	90	13,15
– Civic Programs	10	10	10	0	10	0	0	0	10	13,15

Table 10
2004 IRRF Spending Categories (D)
2207 Report to Congress
Jan 2004

Iraq Relief and Reconstruction Fund (IRRF) -- Spending Plan										
Millions of Dollars				ESTIMATES						
Category	Request	Conference	CPA Allocation	1stQ	2ndQ	3rdQ	4thQ	FY 2005	TOTAL	Contracting Activity (See Key)
GRAND TOTAL	20,304	18,439	18,439	1,389	6,357	2,499	2,408	5,787	18,439	

NOTE: TOTALS MAY NOT ADD DUE TO ROUNDING

Contracting Activity Key*

Contract	Vehicle/ Status*	Award Date**
1 – U.S. Agency for International Development	Competitive (Under selection)	1/6/2004
2 – U.S. Army Corps of Engineers	Restore Iraqi Oil (RIO) #2 Competitive (under selection)	1/15/2004
3 – Army (CPA) Sector Construction Contracts	RFP Release Early Jan04	3/15/2004
4 – Air Force Center of Environmental Excellence Contract	New Contract Awards	12/15/2003
5 – State INL	New & existing contracts	
6 – Other US Army Corps of Engineers	New & existing contracts	
7 – In-Country Individual Procurements (CPA-HCA)	New & existing contracts	Various Dates
8 – Army Contracting	New & existing contracts	
9 – Treasury	New & existing contracts	
10 – HHS	New & existing contracts	
11 – State	New & existing contracts	
12 – Justice	New & existing contracts	
13 – USAID (Other)	New & existing contracts	
14 – Other DoD	New & existing contracts	
15 – US Institute for Peace	N/A	N/A
16 – Non-Procurement	N/A	N/A

* The identification of responsible contracting activities and vehicles is notional and will be revised
** All award dates are approximate

Table 11
2006 IRRF Spending Categories (A)
2207 Report to Congress
Jan 2006

JANUARY 2006 FUNDING PRIORITY

IRAQ RELIEF AND RECONSTRUCTION FUND (IRRF) - Status of Funds Millions of Dollars										
						Actuals Thru 1st Quarter (FY 2006)				
Category	Project Codes	October 5, 2005 Allocation	Previously Notified Changes	New Changes in Report	January 5, 2006 Allocation	Apportioned (Dec 15, 05)	Actual Obligations (as of Dec 28)	Actual Outlays (as of Dec 28)	Rest of FY 2006 Apportionment	TOTAL
Security & Law Enforcement		5017.6	33.0	(14.6)	5036.0	5020.6	4782.2	4092.9	15.4	5,036.0
Law Enforcement		2298.2		(2.0)	2296.2	2298.2	2,216	1,783	(2.0)	2,296.2
-- Police Training and Technical Assistance	10000	1808.4		(2.0)	1806.4	1808.4	1,769	1,428	(2.0)	1,806.4
-- Border Enforcement	11000	436.8	-	0.0	436.8	436.8	398	324	0.0	436.8
-- Facilities Protection Service	12000	53.0	-	-	53.0	53.0	49	31	-	53.0
National Security		2633.4	-	(12.6)	2620.8	2633.4	2,482	2,261	(12.6)	2,620.8
-- Iraqi Armed Forces		1788.8	-	(12.6)	1776.2	1788.8	1,683	1,544	(12.6)	1,776.2
of which:										
-- IAF Facilities	20000	730.8	-	-	730.8	730.8	709	683	-	730.8
-- IAF Equipment	21000	628.6	-	(14.2)	614.4	628.6	599	498	(14.2)	614.4
-- IAF Training and Operations	22000	429.3	-	1.6	430.9	429.3	386	364	1.6	430.9
-- Iraqi National Guard of which:		674.7	-	7.0	681.7	674.7	640	571	7.0	681.7
of which:										
-- Operations and Personnel	23000	224.6	-	-	224.6	224.6	210	178	-	224.6
-- Equipment	24000	91.6	-	-	91.6	91.6	87	85	-	91.6
-- Facilities	27000	358.5	-	7.0	365.5	358.5	343	308	7.0	365.5
-- Iraqi Security Forces Quick Response Program	26000	170.0	-	(7.0)	163.0	170.0	158	146	(7.0)	163.0
Nonproliferation and Export Control & Border Security	09600	0.0	3.0		3.0	3.0	-	-	-	3.0
Focused Stabilization	09500	0.0	30.0		30.0	0.0			30.0	30.0
Commanders' Humanitarian Relief & Reconstruction	28000	86.0	-	-	86.0	86.0	84	49	-	86.0
Justice, Public Safety Infrastructure, and Civil Society		2242.5	42.5	64.8	2349.8	2255.0	2,029.5	1,317.0	94.8	2,349.8
-- Other Technical Investigative Methods	31000	5.0		-	5.0	5.0	1	1	-	5.0
-- Witness Protection Program	30000	37.0	-		37.0	37.0	35	10	-	37.0
-- Penal Facilities	32000	87.0			87.0	87.0	65	22	-	87.0
-- Reconstruction and Modernization of Detention Facilities	33000	165.0	-	2.0	167.0	165.0	136	50	2.0	167.0
-- Facilities Protection, Mine Removal, Fire Service, and Public Safety Facility and Equipment Repairs		274.0	4.0	9.2	287.2	278.0	255	220	9.2	287.2
of which:									-	
-- Facilities Repair	13000	89.0	-		89.0	89.0	80	54	-	89.0
-- Fire Service	14000	115.0			115.0	115.0	106	95	-	115.0
-- Demining	09500	70.0	4.0	9.2	83.2	74.0	70	70	9.2	83.2
-- Public Safety Training and Facilities	15000	219.5	-	-	219.5	219.5	211	159	-	219.5
-- National Security Communications Network	25000	106.5		-	106.5	106.5	102	69	-	106.5
--Rule of Law in Iraq	06500	56.2	-	53.6	109.8	56.2	41	28	53.6	109.8
-- Investigations of Crimes Against Humanity	05000	128.0			128.0	128.0	120	49	-	128.0
-- Judicial Security and Facilities	09000	159.0			159.0	159.0	122	56	-	159.0
-- Democracy Building Activities	06000	995.3	38.5		1033.8	1003.8	933	647	30.0	1,033.8
-- U.S. Institute of Peace (USIP)	07000	10.0	-	-	10.0	10.0	9	8	-	10.0

Table 12
2006 IRRF Spending Categories (B)
2207 Report to Congress
Jan 2006

IRAQ RELIEF AND RECONSTRUCTION FUND (IRRF) - Status of Funds Millions of Dollars										
						Actuals Thru 1st Quarter (FY 2006)				
Category	Project Codes	October 5, 2005 Allocation	Previously Notified Changes	New Changes in Report	January 5, 2006 Allocation	Apportioned (Dec 15, 05)	Actual Obligations (as of Dec 28)	Actual Outlays (as of Dec 28)	Rest of FY 2006 Apportionment	TOTAL
Electric Sector		4309.8	-	(89.8)	4220.0	4077.2	3,042	1,787	142.8	4,220.0
-- Generation	40000	1607.8		0.4	1608.2	1607.8	1,304	978	0.4	1,608.2
-- Transmission	41000	1241.6		(89.8)	1151.8	1009.0	641	306	142.8	1,151.8
-- Network Infrastructure	42000	1289.4			1289.4	1289.4	958	438	-	1,289.4
-- Automated Monitoring and Control System	43000	127.0		-	127.0	127.0	95	21	-	127.0
-- Security	45000	44.0	-	(0.4)	43.6	44.0	43	43	(0.4)	43.6
Oil Infrastructure		1723.0	-	12.6	1735.6	1723.0	1,403	657	12.6	1,735.6
-- Infrastructure	50000	1697.0	3.5	12.6	1713.1	1700.5	1,397	652	12.6	1,713.1
-- Emergency Supplies of Refined Petroleum Products	51000	26.0	(3.5)		22.5	22.5	5	5	-	22.5
Water Resources and Sanitation		2146.6	(15.5)	0.0	2131.1	1819.1	1,421	688	312.0	2,131.1
Public Works Projects		1759.6	(15.5)	15.1	1759.2	1526.3	1,260	605	232.9	1,759.2
-- Potable Water	60000	1483.0	(15.5)	(21.6)	1445.9	1249.7	1,006	498	196.2	1,445.9
-- Water Conservation	61000	31.0	-	-	31.0	31.0	28	23	-	31.0
-- Sewerage	62000	234.7		36.7	271.4	234.7	216	80	36.7	271.4
-- Other Solid Waste Management	63000	10.9			10.9	10.9	10.90	4	-	10.9
Water Resources Projects		387.0	-	(15.1)	371.9	292.8	162	83	79.2	371.9
-- Pumping Stations and Generators	64000	123.0	-	56.9	179.9	123.0	107	46	56.9	179.9
-- Irrigation and Drainage Systems	65000	38.4	-	(30.8)	7.6	36.6	7	5	(29.0)	7.6
-- Major Irrigation Projects	66000	53.4	-	13.0	66.4	50.2	6	3	16.3	66.4
-- Dam Repair, Rehab, and New Construction	67000	61.5		21.1	82.6	57.6	19	15	25.0	82.6
-- Umm Qasr to Basra Water Pipeline and Treatment Plant	68000	110.7	-	(75.3)	35.4	25.4	23	13	10.0	35.4
-- Basra Channel Flushing	69000		-		0.0		-	-	-	
Transportation & Telecommunications Projects		508.5	(38.0)	(5.0)	465.5	508.5	397	209	(43.0)	465.5
-- Civil Aviation	70000	113.7	(38.0)	-	75.7	113.7	54	30	(38.0)	75.7
-- Umm Qasr Port Rehab	71000	45.0	-	-	45.0	45.0	42	30	-	45.0
-- Railroad Rehab and Restoration	72000	189.3		-	189.3	189.3	169	110	-	189.3
-- Iraqi Telecom and Postal Corporation	74000	20.0	-	-	20.0	20.0	14	13	-	20.0
-- Iraqi Communications Systems	76000	45.5	-	-	45.5	45.5	36	13	-	45.5
-- Consolidated Fiber Network	76500	70.0	-	-	70.0	70.0	70	2	-	70.0
-- Iraqi Communications Operations	79000	25.0	-	(5.0)	20.0	25.0	12	11	(5.0)	20.0
Roads, Bridges, and Construction		333.7	-	-	333.7	333.7	256	159	-	333.7
-- Public Buildings Construction and Repair	81000	127.0	-	-	127.0	127.0	123	110	-	127.0
-- Roads & Bridges	82000	206.7			206.7	206.7	133	49	-	206.7
Health Care		786.0	(47.0)	-	739.0	786.0	634	344	(47.0)	739.0
-- Nationwide Hospital and Clinic Improvements	90000	439.0	(35.0)	-	404.0	439.0	351	217	(35.0)	404.0
-- Equipment Procurement and Modernization	92000	297.0	(12.0)	-	285.0	297.0	233	116	(12.0)	285.0
-- Pediatric Facility in Basra	91000	50.0	-	-	50.0	50.0	50	12	-	50.0

Table 13
2006 IRRF Spending Categories (C)
2207 Report to Congress
Jan 2006

IRAQ RELIEF AND RECONSTRUCTION FUND (IRRF) - Status of Funds Millions of Dollars										
						Actuals Thru 1st Quarter (FY 2006)				
Category	Project Codes	October 5, 2005 Allocation	Previously Notified Changes	New Changes in Report	January 5, 2006 Allocation	Apportioned (Dec 15, 05)	Actual Obligations (as of Dec 28)	Actual Outlays (as of Dec 28)	Rest of FY 2006 Apportionment	TOTAL
Private Sector Employment Development		795.3	5.0	5.0	805.3	795.3	782	556	10.0	805.3
-- *Expand Network of Employment Centers*	01000	*8.0*	-	-	*8.0*	*8.0*	*8*	*8*	-	*8.0*
-- *Vocational Training*	02001	*75.1*			*75.1*	*75.1*	*75*	*69*	-	*75.1*
-- *Business Skills Training*	02500	*37.0*	-	*3.2*	*40.2*	*37.0*	*32*	*26*	*3.2*	*40.2*
-- *Micro-Small-Medium Enterprises*	03000	*44.0*	-	*(3.2)*	*40.8*	*44.0*	*36*	*36*	*(3.2)*	*40.8*
-- *Institutional Reforms*	01500	*80.0*	*5.0*	-	*85.0*	*80.0*	*80*	*20*	*5.0*	*85.0*
-- *Agriculture*	01600	*100.0*	-	*5.0*	*105.0*	*100.0*	*100*	*28*	*5.0*	*105.0*
-- *Market-Based Reforms*	03500	*98.9*			*98.9*	*98.9*	*99*	*17*	-	*98.9*
-- *Iraq Debt Forgiveness*	04500	*352.3*		-	*352.3*	*352.3*	*352*	*352*	-	*352.3*
Education, Refugees, Human Rights, Democracy, and Governance		363.0	20.0	27.0	410.0	363.0	335	195	47.0	410.0
-- *Migration & Refugee Assistance*	04000	*159.0*		*27.0*	*186.0*	*159.0*	*153*	*85*	*27.0*	*186.0*
-- *Property Claims Tribunal*	05500	*10.0*	-	-	*10.0*	*10.0*	*9*	*9*	-	*10.0*
-- *Governance*	05700	*40.0*	-	-	*40.0*	*40.0*	*35*	*18*	-	*40.0*
-- *Ministrial Capacity Building*	05750	*0.0*	*20.0*		*20.0*		-		*20.0*	*20.0*
-- *Banking System Modernizations*	08000	*30.0*	-	-	*30.0*	*30.0*	*29*	*22*	-	*30.0*
-- *Human Rights*	09500a	*15.0*	-	-	*15.0*	*15.0*	*11*	*5*	-	*15.0*
-- *Education*	06300	*99.0*	-	-	*99.0*	*99.0*	*88*	*47*	-	*99.0*
-- *Civic Programs*	06600	*10.0*	-	-	*10.0*	*10.0*	*10*	*10*	-	*10.0*
Administrative Expenses		213.0	-	-	213.0	213.0	148	57	-	213.0
-- *USAID*		*29.0*	-		*29.0*	*29.0*	*29*	*29*	-	*29.0*
-- *Administrative Expenses for U.S. Mission to Iraq*		184.0	-	-	184.0	184.0	119	29	-	*184.0*
GRAND TOTAL		18439.0	-	0.0	18439.0	17894.4	15,229	10,061	544.6	18,439.0

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